

UCSF

UC San Francisco Electronic Theses and Dissertations

Title

(Re)defining Healthcare Quality: Metrics, Protocols, and the Restructuring of Care Delivery

Permalink

<https://escholarship.org/uc/item/0wv7x5qt>

Author

Winslow, Rosalie

Publication Date

2020

Peer reviewed|Thesis/dissertation

(Re)defining Healthcare Quality: Metrics, Protocols, and the Restructuring of Care Delivery

by
Rosalie Winslow

DISSERTATION

Submitted in partial satisfaction of the requirements for degree of
DOCTOR OF PHILOSOPHY

in

Sociology

in the

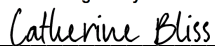
GRADUATE DIVISION

of the

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

Approved:

DocuSigned by:



Catherine Bliss

3621A67CF635431...

Chair

DocuSigned by:



Janet K. Shim

DocuSigned by:



Julia Adler-Milstein

883AB400E37B424...

Committee Members

COPYRIGHT (2020)
by
Rosalie Winslow

ACKNOWLEDGEMENTS

I would like to first thank everyone who participated in this study, my site sponsor, and Borough Hospital for hosting me.

I thank my dissertation committee for their support throughout this process: Julia Adler-Milstein, PhD, Janet Shim, PhD, and Catherine (Rina) Bliss, PhD. Each member has provided insights, expertise, and resources that have been crucial to this project. I would especially like to thank my dissertation committee chair, and my academic advisor since I arrived at UCSF, Rina, for her guidance and mentorship.

I am beyond grateful to my colleagues Sarah Blake, Mel Jeske, and Rashon Lane. Starting this program together and continuing to support each other beyond academic walls has been so significant during this time. I particularly have to express my deepest gratitude to Mel, who provided always-brilliant feedback on my work, and especially on this dissertation.

Above all, I am appreciative to my friends and family for their love and encouragement.

**(Re)defining Healthcare Quality:
Metrics, Protocols, and the Restructuring of Care Delivery**

Rosalie Winslow

ABSTRACT

Healthcare organizations in the United States are increasingly evaluated by systems that link quality measurement with regulatory and payment approaches. Operationalized through quality measurement, quality is affirmed as the basis for improving healthcare processes, outcomes, and health systems broadly. At the same time, electronic health record (EHR) and other information technology (IT) systems aimed to make care safer and more efficient, have become standard tools in healthcare settings. Galvanized by these technical advancements, quality metrics are considered crucial components of ensuring accountability for improved health outcomes and care equity.

This dissertation aims to understand healthcare quality measurement by investigating how systems of quality measurement are implemented in clinical spaces, particularly how they structure care delivery and define quality. This dissertation offers a qualitative study of the organizational and structural elements of quality and quality measurement. I conducted ethnographic observation (15 months) and interviews (n=31) at a 600-bed, acute-care hospital in New York City, which I call Borough Hospital. My analysis utilizes the accounts of healthcare clinicians and administrators, and their experiences navigating care delivery and quality in their hospital. Through this analysis, I investigate the variable meanings of quality, processes of measuring quality, and the conditions under which care is delivered at Borough Hospital.

Using the qualitative analytic methods of grounded theory and situational analysis, I deconstruct the ways in which quality and quality measurement are constructed as neutral and

inevitable, how care delivery is increasingly protocolized to ensure quality, and the ensuing distancing of quality care away from the bedside. Meeting and complying with quality metrics require specific clinical care protocols and extensive documentation for reporting. These new requirements have changed the roles and responsibilities of frontline clinicians, shifting the organization of labor in the clinic. I argue that measurement-based, clinical protocols that rely on surveillance and abstracted documentation data increasingly standardize processes of quality care and distance care—that is, clinician labor—away from the bedside.

The findings of this dissertation suggest a tendency toward protocolization and narrowing demonstrations of quality healthcare, which can be extended into other hospital systems, particularly in light of widespread consolidation. I argue that administrative prioritization of quality measurement, and in particular quality metrics, necessitates the protocolization of complex healthcare processes and increasingly relies on data-driven decision-making. Ultimately, I suggest quality care has been (re)defined by measurement-based, clinical protocols, which I call *abstracted surveillance protocols*, that increasingly standardize and constrain care delivery.

TABLE OF CONTENTS

CHAPTER ONE: INTRODUCTION.....	1
BACKGROUND: QUALITY MEASUREMENT IN HEALTHCARE.....	3
QUALITY MEASUREMENT TODAY	6
THEORETICAL FRAMEWORKS.....	9
<i>Critical Approaches to Quantification, Quality, and Expertise</i>	10
<i>Quantification, Accountability, and Data</i>	10
<i>Quality and Professional Expertise</i>	13
<i>Theories of Technology and Medicine</i>	16
<i>Surveillance and Organizational Knowledge</i>	16
<i>Biomedicalization</i>	21
RESEARCH METHODS.....	26
<i>Ethnographic Observation</i>	28
<i>In-depth Interviews</i>	30
<i>Document Analysis</i>	32
<i>Analysis</i>	33
<i>Navigating Hospital Research</i>	35
BOROUGH HOSPITAL AND CITY NETWORK	37
OVERVIEW OF THE DISSERTATION	41
CHAPTER TWO: SHAPING THE INFRASTRUCTURE FOR QUALITY CULTURE	44
INTRODUCTION	44
<i>Theorizing Healthcare Culture(s)</i>	45
<i>Methodological Choices</i>	47

THE EIGHTH FLOOR: GOVERNING “CULTURE”	48
<i>Explaining Culture in Healthcare Settings</i>	49
<i>Enforcing Quality Culture</i>	52
EVIDENCE-BASED QUALITY CULTURE: QUALITY DIRECTIVES FROM HEALTHCARE LITERATURE	58
“THIS IS EVIDENCE-BASED, AND YOU SHOULD FOLLOW IT:” OPERATIONALIZING QUALITY CULTURE.....	63
TRACKING ENGAGEMENT: VISIBILITY BOARDS AND ACCOUNTABILITY	70
CONCLUSION	77
CHAPTER THREE: FAILING THE METRIC BUT SAVING LIVES: THE PROTOCOLIZATION OF SEPSIS	
TREATMENT THROUGH QUALITY MEASUREMENT.....	80
INTRODUCTION	80
<i>Prioritizing Quality Metrics in the US Healthcare System</i>	82
<i>Managing Sepsis Through Quality Metrics</i>	84
<i>Quantification of Healthcare Quality</i>	86
THE METRIFICATION OF SEPSIS IN EMERGENCY MEDICINE	87
ENACTING QUALITY METRICS ON THE FLOOR	92
COMPETING PRIORITIES: NAVIGATING CARE AND REPORTING	97
CONCLUSION	101
CHAPTER FOUR: “FLOW IS OUR QUALITY:” DEMONSTRATING CLINICAL SUCCESS WITH DATA AND	
EFFICIENCY	104
INTRODUCTION	104
<i>Theoretical Framing</i>	105
FLOW: QUANTIFYING PATIENT MOVEMENT	107
STANDARDIZING DECISION-MAKING WITH AUTOMATED PATIENT TRACKING.....	114

(RE)ORGANIZING FLOW.....	122
CONCLUSION.....	128
CHAPTER FIVE: CONCLUSION.....	131
SUMMARY AND KEY FINDINGS	131
<i>Abstracted Surveillance Protocols</i>	134
IMPLICATIONS AND FUTURE DIRECTIONS	135
<i>Sociological Implications</i>	135
<i>Quality Metrics in the Wake of COVID</i>	136
<i>Future Research</i>	139
FINAL CONCLUSIONS.....	140
REFERENCES	141
APPENDICES.....	166

LIST OF FIGURES

FIGURE 3.1 - Timeline of factors relevant to sepsis metrics.....	92
--	----

LIST OF TABLES

TABLE 1.1 - Meetings observed during ethnographic field work.....30

TABLE 1.2 - Interview participants.....32

ACRONYMS AND ABBREVIATIONS

ACA	Affordable Care Act, 2010
AHRQ	Agency for Healthcare Research and Quality
CEO	Chief Executive Officer
CFO	Chief Financial Officer
CMIO	Chief Medical Informatics Officer
CMO	Chief Medical Officer
CMS	Centers for Medicare and Medicaid Services
CNO	Chief Nursing Officer
CQO	Chief Quality Officer
Dashboards	Data visualization platforms for healthcare data and metrics
DOH (NYSDOH)	Department of Health (New York State Department of Health)
eCQM/CQM	(Electronic) Clinical Quality Measures
ED/EM	Emergency Department / Emergency Medicine
EDQA	Emergency Department Quality Assurance
EHR	Electronic Health Record
HCAHPS	Hospital Consumer Assessment of Healthcare Providers+Systems
HHS	Department of Health and Human Services
HIT	Health Information Technology
HITECH	Health Information Technology for Economic and Clinical Health (Act), 2009
MACRA	Medicare Access and CHIP Reauthorization Act, 2015
MBQIC	Medical Board Quality Improvement Committee
MIPS	Merit-based Incentive Payment System
NQF	National Quality Forum
NQS	National Quality Strategy
PTD	Patient Tracking Department
QPS (goals)	Quality Patient Safety
RTF	Rapid Task Force
VP	Vice President

CHAPTER ONE: INTRODUCTION

“When you're supervising, when you're trying to give care, when you're trying to do flow, and in addition, you have to do this metric. We can do that but that you need to eliminate other things from the requirements we have as practitioners. So yeah, I'll do all that, but we need help in this other area. And what happens, is we end up sacrificing ourselves and our mental and physical selves. We reach whatever those metrics are, all those metrics but on top of that we have to have good flow, and then on top of that we have to have good quality care.” *Emergency Medicine Physician, Borough Hospital*

Quality metrics are transforming healthcare delivery in hospital systems across the country. This dissertation aims to understand contemporary healthcare quality measurement in the United States. Specifically, this dissertation investigates how systems of quality measurement are structuring care delivery and defining quality in clinical spaces. I am centrally concerned with how quality measurement is situated and claims authority in hospital organizational structures. Effectively as a case for broader systemic and structural healthcare trends, this dissertation offers an in-depth ethnography of one hospital, Borough Hospital in New York City, manages and interacts with quality measurement. My analysis uncovers the ways in which quality and quality measurement are constructed as neutral and inevitable, how care delivery is increasingly protocolized to ensure quality, and the ensuing distancing of quality care away from the bedside.

I came to this project after working in healthcare and witnessing disconnects between clinicians' experiences delivering care and the growing importance of electronic health record (EHR) documentation. Furthered by my training in sociology, and reading of biomedicalization and science studies literatures, I increasingly understood the production of technological advancement in medicine and science and ways certain implications—such as inequality and exclusion—were often obscured. The intersections between documentation and quality

measurement emerged early in my research and I began to investigate the production of EHR documentation as a condition of quality measurement. The misalignments I had observed between providers' accounts of EHR use and the requirements were often obfuscated by a prioritization of healthcare measurement, operationalized by quality measurement, or metrics. Thus, this dissertation engages three central research questions: How are measurements of healthcare enacted in the clinic? In what ways is quality shaped by increasing reliance on metrics and analytics? How is care delivery broadly, as well as direct bedside patient care, being structured by the goals of quality measurement? By answering these questions, I elucidate the organizational structures, actors, and systemic priorities that both construct and are constructed by the imperative to measure quality in healthcare.

This dissertation critically examines organizational and structural elements of quality and quality measurement through ethnographic observation and interviews; it relies on the accounts of healthcare clinicians and administrators, and their experiences navigating care delivery and quality in their hospital. While my research questions are grounded by concern for patients and healthcare equity, this study did not include talking to patients or directly observing patient-provider interactions. Patient experience and patient care were large components of my research and as such are central to both my analysis and interpretations of the role of quality plays at Borough Hospital. Patients are continually implicated as actors in healthcare settings. Systems and phenomena like healthcare as a consumer industry, public reporting, patient satisfaction surveys, hospital compare all implicated patients as key drivers of the need for improved quality. And yet what I found most interesting were the largely abstract and organizational underpinnings of quality, *quality culture*, and quality measurement. As I demonstrate in this dissertation, despite being continually framed as patient-centered efforts,

pursuing high quality care seemed to most centrally be about systems, processes, and the potential of quantification.

The topic of quality measurement and quality improvement in healthcare is not new (Chassin et al. 2010; Donabedian 2005; Lazar, Fleischut, and Regan 2013). However, extensive healthcare consolidation in the US escalates the need for standardization and corporatization, accordingly, altering the context of quality measurement. This was the case at Borough Hospital, which during my fieldwork, was in the midst of a consolidation into a larger corporate health system (City Network). This study is not a before and after study – quality metrics and clinical processes and practices are continually being shaped and reshaped by regulatory and social forces, with significant consequences for patients and clinicians. Similarly, these consequences are continually unfolding. As such, I choose to utilize (re) as a prefix to clarify words such as defining, structuring, or organizing. This represents both attention to change, and also questions whether these are in fact new social processes, or just repackaged ones that characterize our current moment in healthcare. The current context of healthcare right now – branded by the proliferation of data and technological resources, consolidation, corporatization, changing clinician roles, increasing inequality – makes this moment particularly compelling for sociological intervention. As ever, healthcare settings are sites of social inequity and stratification. This dissertation offers a distinctive perspective and critical analysis of the way metrics and care delivery are functioning *right now* in healthcare settings – an analysis that will inevitably shift with time, and as new priorities and ways of measuring those priorities change.

Background: Quality Measurement in Healthcare

Quality and quality measurement have a long history in healthcare. I will briefly describe the relevant trajectory of quality measurement in healthcare as it relates to where we are now.

The term quality can take up a range of meanings and implications; in healthcare, while interpretations may vary, there is some consensus on a regulatory definition. The Institute of Medicine (IOM) defines quality as: “the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge” (Allen-Duck, Robinson, and Stewart 2017). Based on this definition, quality measurement today is explained as a tool that can quantify healthcare processes that are associated with high-quality care (CMS 2019b).

An early appearance of attempts to improve quality came from the Hospital Standardization Program, established by the American College of Surgeons in 1913, to evaluate and certify hospitals. In 1951, this became today’s The Joint Commission, which still accredits and certifies healthcare organizations in the US. Medicare was established in 1965; however at this time the government agency was primarily concerned with access to healthcare without linking any concerns for quality (Chassin and Loeb 2011; Lazar et al. 2013). Importantly, the 1960s were also when Avedis Donabedian created his conceptual framework for *measuring* quality, which included, for the first time, an explicit focus on structure, process, and outcome (Chassin and Loeb 2011; Donabedian 2005). In 1972, Medicare Professional Standards Review organizations were established that put physicians at the forefront of evaluating and reviewing standards for care and treatments. This was not supported by the American Medical Association at the time, which feared increasing government intrusion into the professional standards and certifications they had controlled since their professionalization (Freidson 1988; Starr 1982).

By the 1980s Medicare and other quality-focused agencies had not succeeded in improving quality or lowering the rising costs of healthcare. In 1983, Medicare’s Profession Standards Reviews became the Medicare Utilization and Quality Control Peer Review

Organization program, which more recently became the Quality Improvement Organization program. The principal focus of new programs like these was to evaluate costs by regulating the use of healthcare services (Chassin and Loeb 2011; Lazar et al. 2013; Marjoua and Bozic 2012). These organizations followed in the general trajectory of science and medical research at the time. In the medical field specifically, clinical practice guidelines emerged due to growth of research and evidence based interventions (Burstin, Leatherman, and Goldmann 2016; Chassin and Loeb 2011). Now a central actor in the quality world, the Agency for Health Research and Quality (AHRQ)¹ was established in 1989 to increase the visibility of research on quality-related deficiencies. Similarly, the Joint commission updated its certification process to align with Donabedian's framework and AHRQ methods (2016; 2013; 2012).

Major healthcare reforms proliferated in the 1990s and 2000s catalyzed by two breakthrough reports from the Institute of Medicine about quality (Institute of Medicine 1999, 2001). Recently, a growing number of organizations and agencies are involved in quality improvement and measurement. The National Quality Forum (NQF) and the Centers for Medicare and Medicaid (CMS) for example, both exert substantial influence when it comes to hospital management, and increasingly public reporting and healthcare consumerism play a role in their approaches to quality (Burstin et al. 2016; Kizer 2001). Despite this attention there continue to be challenges to establishing widespread “quality” throughout healthcare systems. A key tactic more recently has been to further incorporate methods of reliability and accountability to create “collective mindfulness” in quality efforts (Chassin and Loeb 2011).²

¹ See appendix A for the National Quality Strategy produced by AHRQ on behalf of the Department Health and Human Services (HHS)

² Some of this language stems from quality in aviation and airline safety, where health researchers looked for quality lessons (Chassin and Loeb 2011; Mannion and Davies 2018).

Quality Measurement Today

Quality measurement has persisted as an essential priority in healthcare for decades, and this history offers an important frame to theorize today's practices of quality measurement. Quality measurement was constructed in a framework that viewed the establishment of standards and accreditation as indicators of quality, therefore supporting the assertion that quality is a universal solution for errors and inconsistencies. As such, Medicare's quality improvement programs are a significant focus of this dissertation. Increasingly, CMS dominates healthcare regulations because of the significant financial impact of Medicare reimbursements (Lazar et al. 2013; MacLean, Kerr, and Qaseem 2018). Based on general consensus that the traditional model of "fee-for-service" payments in the US was ineffective and actually increased healthcare costs, alternative payment models have been developed in recent years (Lin, Hollingsworth, and Adler-Milstein 2019; Miller 2009). Specifically, these new alternative models focus on elements of value and quality. Value-based payment and purchasing, implemented by CMS, links quality process and outcome measures to hospital reimbursements for Medicare. CMS's Core Measures cover a wide-range of healthcare processes and are purported to both support value-based payment and improve efficiency, quality, and outcomes (Ginsburg and Patel 2017; Song et al. 2019).

In this dissertation I examine quality measurement largely by investigating the implementation of metrics developed to evaluate quality. Quality metrics are "tools" used by CMS in this case, to:

Measure or quantify healthcare processes, outcomes, patient perceptions, and organizational structure and/or systems that are associated with the ability to provide high-quality health care and/or that relate to one or more quality goals for health care. These goals include: effective, safe, efficient, patient-centered, equitable, and timely care (CMS 2019b).

In healthcare settings across the country, quality metrics increasingly shape the conditions of quality, of equitable, of efficient healthcare. Metrics come from a wide set of agencies beyond CMS, including the DOH, Joint Commission, National Quality Forum, National Database for Nursing Quality Indicators, as well as local, hospital-specific metrics. CMS administers 43 metrics. Importantly, increasing numbers of quality metrics are met and reported on using data gathered from Electronic Health Records (EHR).

Electronic Clinical Quality Measures (eCQMs) leverage the proliferation of Health Information Technology (HIT) in healthcare. The 2009 Health Information Technology for Economic and Clinical Health (HITECH) Act was among the first policy actions in a wave of federal attention to electronic record keeping and management in the healthcare sector. HITECH was signed into law prior to the Affordable Care Act (ACA 2010) but carried similar emphasis on modernization and efficiency and reflected many emerging trends in healthcare management and oversight. The 2009 act, however, was primarily concerned with increasing and eventually mandating EHR adoption in clinical sites. Not only did this policy encourage digital advancement, it also utilized punitive financial consequences for providers who were unable to meet adoption goals. CMS established an EHR incentive program to reimburse providers and hospitals as they demonstrate “meaningful use” of certified types of EHR technology (CMS 2015). This program was an earlier example of what metrics did as well, tying Medicare payments to success in meeting federal goals and standards. CMS’s “meaningful use” integrated EHR systems with hospital and provider reimbursements as well as quality metrics, care coordination efforts, and billing coding practices.

At the time of my research in 2018 and 2019, Borough Hospital was managing at least 40 quality metrics. In Chapters Three and Four, I examine specific quality metrics and analyze how

both clinicians and administrators navigate reporting on and complying with them. There countless other metrics I do not discuss explicitly but still inform the overarching arguments of this dissertation. Quality metrics are a critical tool in the prioritization of quality measurement happening in many healthcare systems. And yet, there are other crucial considerations in the context of today's healthcare landscape, ones that are often relegated and obscured. Any contemporary examination of healthcare or medicine is framed by increasing and escalating health inequities in the US. We know that healthcare is fundamentally stratified by race and class, as has been well documented by medical sociologists for decades (Link and Phelan 1995; Monk 2015; Obermeyer and Mullainathan 2019; Singh and Miller 2004; Williams et al. 2010; Williams and Collins 1995). And while quality initiatives and measurement practices purport to improve health disparities and improve access, there is in fact very little evidence of it doing so (Barbash and Kahn 2019; Rubin 2018).

The changing landscape of the healthcare workforce is also important in the framing of this dissertation. We have seen reports of a “shortage” of doctors, related to increased demand, changing professional requirements, and the shuttering of US medical schools (Ishak et al. 2013; Jenkins 2020). These changes will undoubtedly shift how healthcare delivery is structured and how medical knowledge is valued in the coming years. Finally, as mentioned, significant healthcare consolidation has increased corporate and standardized models of healthcare measurement. As hospitals face financial crises and close throughout the country, large healthcare systems have gained monopolies particularly of regional health services (KaufmanHall 2018). In New York City (NYC), where the research for this dissertation was completed, there are currently four primary networks for healthcare delivery. These multi-hospital systems have grown significantly through increasing consolidations and acquisitions of

previously independent hospitals. In addition, 41 hospitals in NYC have closed in the last twenty years. While the city's public hospital system, NYC Health and Hospitals, remains active, the other four systems are often called the "big four" for their large presence and influence. as have grown significantly in the past five years, through extensive acquisitions and mergers (Uttley et al. 2018).

Theoretical Frameworks

I engage two broad areas of theory in this dissertation. I draw on these frameworks to make sense of the conditions and constructions of quality in healthcare delivery. The first section considers critical approaches to quantification, quality, and expertise. This includes theories on quantification and data, and their roles in accountability. I then turn to foundational theoretical approaches to quality and the medical profession, which provide the underpinnings of critical accounts of shifting expertise and authority for clinicians. The second section takes up theories of technology and medicine, focusing on surveillance, knowledge and organizations, and biomedicalization. I use these theoretical approaches and their intersections to consider how increasingly quantified clinical spaces are (re)shaped and (re)organized by processes of quality measurement. Taken together, these frameworks allow me to account for the many forms of quality and quantification that go beyond linear associations between healthcare quality and success.

Critical Approaches to Quantification, Quality, and Expertise

Quantification, Accountability, and Data

Healthcare in the United States is increasingly being tracked and measured as the potentiality of information technology (IT) and big data proliferates. New technologies, such as Electronic Health Records (EHR), create opportunities for stakeholders to capitalize on the growing accumulation of both patient and workflow data. Further, as we've seen in theoretical interrogations of the valuation and quantification of human processes throughout the years, technical resources and data in these settings gain authority for delivering unbiased knowledge (Introna 2016; Latour 1987; Rottenburg et al. 2015; Shore and Wright 2015). Healthcare has also relied on mechanisms of accountability, as the imperative for "quality" intensifies. While quality of care has been a central concern of healthcare organizations for many years (Ayanian & Markel, 2016; Donabedian, 1965; Starr, 1982), its role in clinical spaces has grown significantly as it is actively used in processes of quantification and measurement (Casalino et al. 2016; Cruz 2018; El-Jardali and Fadlallah 2017).

Efforts to quantify and measure health care delivery are amplified by goals of quality improvement, and healthcare systems increasingly engage in data-based accountability to consolidate and standardize management (AHRQ 2019b). These trends towards quantification and accountability in healthcare, mirror the trajectories of education, criminal justice, and social welfare (Eubanks 2017; Muller 2018). Both processes and outcomes of care delivery are quantified in order to prove quality in various ways. We have witnessed health technology and big data move quality measurement and metrics into care delivery (El-Jardali and Fadlallah 2017; NEJM Catalyst 2018).

Yet, theoretical engagement with perspectives examined in the next sections, exposed the potential that the benefits of quantification and accountability may go unrealized or carry significant downsides (Benjamin 2016; Clarke et al. 2010; Foucault 1995). As will be considered further, we have seen the unintended consequences of relying on data as well as the roles quantification and accountability can play in surveillance and inequity. Scholars have specifically questioned the neutrality of quantification and pushed back on the idea that measurement ensures objectivity or even potential success (Espeland and Sauder 2016; Espeland and Vannebo 2007; Eubanks 2017). Reliance on technical advancements, quantification, and data often obscures existing disparities and structural inequalities, while also generating significant unintended consequences (Bell and Figert 2015; Clarke et al. 2010; Eubanks 2017; Shim 2014).

Sociologists have taken up questions of neutrality in different ways. Considering the implications of increasing technology in medicine, Timmermans and Berg argue that efforts to standardize have subtly but radically redefined clinical interactions and roles. And more recently, we have seen the simultaneous ubiquity *and* inconsistency of standards as they enter healthcare measurement and systems of accountability much more broadly (Timmermans and Berg 2003; Timmermans and Epstein 2010). Intersections of quality and measurement are especially present as healthcare continues to both modernize and standardize.

Quantification also acts as a key motivator for standardization and accountability, as it facilitates the establishment of trust in data and research (Espeland and Stevens 1998; Porter 1995). Considered transparent and objective, quantification explicitly leans on numbers to produce value and authority (Espeland and Sauder 2016). Healthcare decisions and policies alike, especially those made in the healthcare, rely on the quantification of practices and

processes, ultimately making healthcare more trackable. For many working to promote accountability in health care, quantification, is therefore purported to be the solution to inconsistencies in care delivery, clinical decision-making, and outcomes. However, Espeland and Vannebo (2007) show that quantification does not in fact guarantee a better outcome. Instead, quantification merely obscures the role of authority and potential inequities as they are invisibilized by a trustworthy process (Porter 1995).

With EHR-derived data and metrics increasingly available to hospital administration and clinicians, technological advancement takes up a new and evolving role in healthcare delivery. This has been termed the “metrification of society”(Cooley and Snyder 2015; Greenfield 2017; Muller 2018). The proliferation of quantification has not only leveraged accountability politics, but also increased the capabilities of data and monitoring. The “metrification of society” describes an obsession with measurement and metrics. Further, it enables the exaggeration of only beneficial quantification and monitoring (Eubanks 2017; Greenfield 2017; Muller 2018). Metrification is evident in healthcare quality and quality measurement. Healthcare metrics and their data mirror systems of management and political control theorized by other scholars (Miller 2001; Rose 2007).

Theoretical frameworks that challenge the neutrality of data-driven solutions encourage the examination of technologies, like metrics, that may standardize ideas of quality and value. By engaging with these theories of quantification, it is possible to surface and examine the meanings and expectations of establishing quality that may otherwise remain hidden. Recognizing the degree to which quantification is embedded in healthcare, prompts us to ask questions about the utility of data produced by EHRs and quality measurement. Further, the ways in which those data are mechanized raise additional questions about the role of technological advancement in

structuring healthcare delivery. What are the consequences of these “data-driven” approaches for healthcare delivery, and both healthcare providers and the patients they serve?

Quality and Professional Expertise

Avedis Donabedian, a 20th century physician, was among the first to write critically about the definitions and implications of quality in a healthcare context. Importantly, Donabedian considered methods of evaluating healthcare that moved beyond the patient-provider interaction (Donabedian 1965). While he focused on methods and approaches for assessing quality, he noted the difficulty of defining quality early on and maintains that quality will always be a “reflection of values and goals current in the medical care system and in the larger society of which it is part” (1965: 167). He explained the inherent subjectivity in quality and the complexity of assuming any standards in physician practice, recommending a shift in focus “from preoccupation with evaluating quality to concentration on understanding the medical care process itself” (1965: 196). It seems however, that while this analysis remains relevant, contemporary health care policy has abandoned this message.

Tracing these origins of quality and quality measurement exposes the fundamental intersections of quantification, quality and authority. Even Donabedian continued research on quality, maintaining later that the central concern of characterizing quality must be method and measurement. Echoing early examinations of authority, which will be discussed below, Donabedian maintained that successful measurement is contingent on empirical and normative standardization (Donabedian 1965; Freidson 1988; Starr 1982). Despite Donabedian’s initial challenges to claims about the neutrality of the idea of quality in healthcare, this view of quality persists as a central component of healthcare inquiry and research. The transformation of

healthcare and the medical profession throughout the nineteenth and twentieth centuries provides historical context for the current status of dominant understandings in quality and quantification. Due to growing professionalization and corporatization in the US, the rapid expansion of medical schools formalized training and medical practice in this era (Starr 1982). In many ways, the growth of medical schools and sanctioned medicine in the 1800s mark early shifts toward standardization and quality measurement in healthcare. Medical schools not only increased ongoing professionalization of physicians but also formalized licensing, codes of conduct, and professional fees in the discipline.

Starr (1982) points to the evolving meaning and function of authority throughout the 19th century as a crucial point in the transformation of the field. The medical profession gained new authority from emerging definitions of dependency and legitimacy. Further, as patients became dependent on providers and their expert knowledge, the field acquired new quantifiable authority. Legitimacy was therefore produced and reproduced by the medical community and validation of their own knowledge. Ultimately, health “values” began to be mechanized by the medical profession in order to promote their interpretation of what constitutes the “social good” (1982). During this time, cultural authority simultaneously enabled ubiquitous control of the occupation by medical professionals (physicians). Throughout the 19th century physicians’ specialization, increased hospitals, and scientization all supported the acculturation of medical expertise and overall sovereignty of the field and its knowledge (1982). This specialization and legitimation of knowledges in many ways mark precursors to a much later interest in specialized highly technoscientific knowledges and digitized solutions.

As Freidson (1994; 1988) demonstrates, professional knowledge operates *as ideology*, although taken for granted. In his account of professionalization in medicine, physicians gained

an occupational right to perform a specific job as well as exclusive power over a body of knowledge. Freidson (1994) also discusses the concept of professional control over work as a critical part of the medical field. Furthering an assumption that in order to own work, one must control quantity and quality of the outcome, he purports that in medicine particularly, quality is expanded to include the *performance* of work as well (1994:71). Ideas of quality have continued to be extended further throughout healthcare and medicine, occupying a seemingly immovable position in the assessment of modernization and advancement. Building from Freidson's and Starr's notions of knowledge, ownership, and exclusivity, we can link interpretations of quality and performance to a contemporary emphasis on federal quality measures and alternative payment models.

More recently, we have seen new transformations in healthcare and medicine. Alongside modernization and advancement in technology, payment models, and health knowledge, there have also been changes within the healthcare workforce and medical profession. The exclusive knowledge that shaped the growth and power of the medical discipline throughout the nineteenth and twentieth centuries has shifted (Light 2010; McKinlay and Stoeckle 1988; Starr 1982). While the medical profession has remained resilient to “countervailing forces” (2010:269) a consistent set of factors that form and reform elements of physician authority (Jenkins 2018; Timmermans and Oh 2010; Zibrowski et al. 2018). In examinations of the medical profession and medical education, scholars have highlighted burnout and technology fatigue as crucial areas of investigation (Gardner et al. 2019; Ishak et al. 2013; van der Niet and Bleakley 2020). Others point to changes in credentialing, exclusive testing systems, and training as part of a shift in the landscape, as well as a shortage in medical trainees and residency positions (Jenkins 2020; Knopes 2020a, 2020b; Underman 2020). While there is little consensus in these assessments of

the medical profession, what they share is an indication of the changing dynamics and practices for healthcare providers, particularly physicians. Some researchers have even proposed the “deskilling” of physicians, purporting that increased technology could curtail physician expertise and decision-making (Hoff 2011; Lu and Shaw 2016). Ultimately, these literatures point to crucial places for investigation and a continued need for additional research on these subjects. As we see health IT and metrification continue to proliferate in healthcare, we can expect an expansion of challenges to expert knowledge and professional expertise.

Theories of Technology and Medicine

Surveillance and Organizational Knowledge

Foucault’s (1978) archeological method and theoretical engagements with the exercise of power and surveillance offer important insights into the historical development of quality and quantification in healthcare, and the ways that power is exercised. Using the archaeological method, Foucault examined existing utterances, connections and overlaps in processes: a critical source of insight for measures of care delivery and quality. Foucault’s archeological tool allowed him to move beyond individual subject consciousness, or rather decenter the subject, for a fuller perspective on the processes and transitions of thought pertaining to a given subject (Turner 1997). The archeological method maintains that knowledge systems, epistemes and discursive formations, according to Foucault, are created and maintained by rules that function beyond consciousness and set the boundaries for thought potentiality within a given time period or phenomena (Foucault 1972; Turner 1997). There are many elements of healthcare quality management and policy, for instance, that did not exist even ten years ago and therefore must be examined to reveal their emergence in discursive practice.

Moreover, Foucault's theoretical contributions on surveillance and power are critical to examine how assertions of quality healthcare may give rise to knowledges and power that were not "embodied" in previous eras (Foucault 1978, 1995). In other early work, Foucault turned his attention health and medicine. Through his consideration of the science of epidemics, he theorizes that the treatment of disease increased "species" medicine by increasing experts, classifications, and policing around human conditions (in many ways foreshadowing of Zola's and Conrad's medicalization (Conrad 1992; Foucault 1972, 1978; Zola 1972). Here, Foucault's assessment of growing emphasis on classification and standardization in many ways foreshadows a contemporary reliance on quantification and standardization.

The crucial contribution of Foucault taken up in this dissertation is disciplinary power (1995). This perspective explicitly acknowledges power, dominance and subordination in healthcare. Foucault explains a historical shift in the way power has been exercised, in society at large. Sovereign power exerted mass control from a sovereign who maintained absolute power, there was little interest in community and power and punishment were overt and oppressive (1978, 1995). Foucault identifies disciplinary power as a transformation in the way individuals and communities are controlled. Everyone is implicated in disciplinary power.

By power I do not understand a general system of domination exercised by one element or one group over another... Omnipresence of power: not at all because it regroups everything under its invincible unity, but because it is produced at every instant, at every point, or moreover in every relation between one point and another. Power is everywhere: not that it engulfs everything, but that it comes from everywhere" (Foucault 1978:78).

Power travels through and outside of everyone and most critically for this topic, punishment is constant and consistent through primarily self-disciplining actions and consciousness.

Ultimately, the purpose of disciplining is to manage both bodies and the behavior of bodies in a society, creating a docile population. Surveillance is also central to disciplinary power. Whether

surveillance is visible or invisible, it serves to control individuals and communities in part by influencing the uptake of self-disciplining (1978, 1995).

In exploring metric quality tracking and reporting, I follow how shifts in quantification and accountability can be explicated by Foucault's theories on individualizing and surveillance. As regulatory and standardization processes are increasingly rationalized through the quality imperative, they exercise disciplinary power by quantifying care. Martin et al. (2013) explore how this dynamic operates in the governance of quality and patient safety in UK hospitals. They argue that disciplinary power in these settings exerts force through professional accountability and quality work rather than individualizing (Martin et al. 2013). Shifting responsibility and accountability for the management of quality goals and data implicates both clinicians and hospital administrators in the disciplining of clinical spaces. New hierarchies are created through the increasing and complex intersections of care delivery, chart documentation, quality metric compliance, and best practice. As power enacts itself in new areas, the role of surveillance in quality measurement is amplified. One key component of EHR systems is the inclusion and availability of any and all types of medical information. Further, the centralization of this information allows documentation and reporting to be true sites of both implicit and explicit surveillance (Foucault 1978, 1995).

Engaging with theories of surveillance, risk, and disciplinary power can also lead to a consideration of normalization. Theorists have pointed to a technoscience's preoccupation with temporal potentiality as a mechanism of normalization (Adams, Murphy, and Clarke 2009). They take up ideas of anticipation and "living toward the future" (2009:246) to expose how anticipating future possibility and solutions is central to technoscience, particularly in its penetration into health and medicine. "Anticipation is the palpable sense that things could be

(all) right if we leverage new spaces of opportunity, reconfiguring ‘the possible.’ We illustrate exemplary sites of anticipatory practice, especially biomedical...” (2009:247). The problems or shortcomings of today’s technologies are often overshadowed by the potentiality of future successes. This anticipation is evident in the rhetoric of quality improvement as well as in IT and data advancement. Further, in the context of increasing overlap between care delivery and measurement, both the future and the anticipation of predetermined futures are constructed as inevitable (2009). This sense of inevitability in anticipated solutions produces normalized outcomes with little context or nuance

The processes that normalize the increasingly data-driven and surveilled healthcare system are complex. May and Finch point to those complex processes as being key to an understanding of normalization in all fields (2009). Normalization theory is primarily “concerned with the social organization of the *work* (implementation), of making practices routine elements of everyday life (embedding), and of sustaining embedded practices in their social contexts (integration)” (2009:538). Explicitly addressing the work, as well as paying particular attention to practices of embedding, are both instructional in an examination of quality measurement. May and Finch maintain that the organization and the (re)production of the social processes that construct normalization are a rich site for sociological examination.

In the healthcare context specifically, practices and processes, especially those that are technologically complex, become embedded in their clinical context (May and Finch 2009). The concept of healthcare quality exemplifies this point. Both the meaning of the word and the importance of measuring “quality” have been obscured by the assumed success of promoting quality in healthcare. Aligning with the theoretical considerations of normalization (Adams et al. 2009; May and Finch 2009), in the case of quality, the implications and conditions of

measurement are often blurred by an emphasis on outcome. The conditions that both enable and require that sort of normalization seem to parallel the “black boxing” of quality (Latour 1987, 2005). The embeddedness of such processes thus enables their normalization, without consideration of the context of their emergence.

The attention to embedded practices in theories of normalization are well complemented by a consideration of organizations and organizational culture. Early analyses of the social – of interactions, labor, and power – provide crucial frameworks for the continued theorization of organizations. Both Weber’s writing on bureaucracy and Durkheim’s examination of the division of labor offer classical approaches to assess the ways individuals and groups interact and manage power (Cockerham 2015; Durkheim 1984; Weber 1922). These foundational theories identified patterns and themes that ordered society. Furthering their theoretical contributions, Marx and Engels (1978) foreground power and class in their analysis of the division of labor and ownership. Building from classical social theory, organizations continue to be a crucial site for social research.

More recently, scholars have focused on organizational culture and its role in organizations, and social structures more generally (Deal and Kennedy 2000; Schein 2010). However, such studies reflect the complicated nature of defining culture in social science (Braithwaite et al. 2017; Martin 2002). Scholars of organizational culture have followed sociology and anthropology, in defining culture as a set of values, customs, and beliefs shared by a group (Alvesson 2002; Ashkanasy, Wilderom, and Peterson 2000). Deal and Kennedy (2000) categorize organizational cultures in corporate settings by their feedback norms, rewards systems, and risk, and find that many businesses were seemingly “obsessed with culture” (2000:8). Schein (2010) takes a more nuanced approach to organizational culture, stating that

cultural meaning in organizations is relayed through verbal, behavioral, and physical “artifacts.” He asserts that values, rituals, and artifacts are central to understanding organizational culture. Considering healthcare specifically, Mannion and colleagues offer theory of organizational culture as well as its role in quality improvement specifically (Jacobs et al. 2013; Mannion and Davies 2018). They suggest that culture is a central element of establishing quality improvement initiatives and navigating their success.

Knowledge production and knowledge management also play a role in organizations. Tacit knowledge is generally defined as shared but unspoken understandings in groups (Collins 2010; Doing 2011; Lynch 2013; Polanyi 1966). Specifically, they identify tacit knowledge as a key influence on knowledge sharing and decision-making in organizations. In healthcare systems, scholars find that tacit knowledge is often serves as an explanation for norms and practices that can seem unexplainable. It also provides researchers the tools to understand and reveal elements of culture that are often invisible (Jamshidi et al. 2018; Kothari et al. 2011; Yoo, Zhang, and Yun 2019). Theories of surveillance, disciplining, normalization, organizations, and knowledge taken together provide a strong framework for this dissertation.

Biomedicalization

Following the critical engagement with theories of surveillance, quantification, and authority, this section introduces critical perspectives on the intersections of technology and medicine. Clarke et al. (2010) offer an expansion and critique of Conrad’s medicalization theory (1992) in their explanation of biomedicalization theory. They purport that in the wake of increasingly technoscientific and personalized contemporary medicine, an updated look at medicalization processes is needed. Conrad’s medicalization, among other things, suggested that there had been

a marked transition from “badness to sickness” in the 40 years prior to his writing.

Medicalization, therefore, is the process by which previously nonmedical issues are categorized and consequentially treated as medical problems. Conrad stresses the importance of the defining and processual conditions of the medicalization perspective (Conrad 1992; Conrad and Barker 2010). This perspective was seen in literature on countless “conditions,” including, alcoholism, hyperactivity, PTSD and menopause (Conrad and Barker 2010). While scholars have widely endorsed the concept of medicalization, many assume that the term connotes inherently negative meanings. In fact, the practice of medicalization is complex and fluid. The key strength in the conceptualization of this fundamental shift in health and medicine, is its attention to processes and consequences *of* medicalization.

Clarke and colleagues assert that the process of medicalization can no longer account for the significant organizational and technological shifts in today’s (bio)medicine. “Biomedicalization describes the increasingly complex, multisited, multidirectional processes of medicalization, both extended and reconstituted through the new social forms of highly technoscientific medicine” (Clarke et al. 2010:47). These transformed multisited and multidirectional processes are the very changes that led to and continue to shape care delivery, quality, and the use of health IT. Clarke and her colleagues suggest the transformations in biomedicine since the 1980s have enabled more than just control over bodies. Instead they assert that technoscientific innovations have created the potential for the transformation of human and nonhuman bodies from the “inside out” (Bell and Figert 2015; Clarke et al. 2010). Biomedical solutions for matters beyond just that of illness produce new subjects and subjectivities, furthering even Foucault’s notions of disciplining human subjects. Mamo and Fosket state that bodies are therefore both “objects and effects of technoscientific and biomedical discourse” (2009:927).

Biomedicalization is concerned with, and reveals, the complexities of an increasingly technoscientific healthcare by maintaining a postmodern preoccupation with process. “Whereas the process of medicalization might be best conceived in modern terms of engineering, control and rationalization, the process of biomedicalization can be conceived of in its postmodern terms of networks, spirals and complexity” (Bell and Figert 2015:26). The early groundwork of professionalization, authority and rationalization, complicated by disciplinary power, that set the stage for tendencies towards standardization and personalization in medicine, have been carried through to be contingent on technoscientific innovation and pervasiveness. Biomedicalization also shines a light on the complexity of the often at odds priorities of technologies, like metrics and EHRs. Clarke and her colleagues assert that five historical processes co-constitute biomedicalization; political economic shifts, emphasis on risk and surveillance, technoscientization of biomedicine, shifts in knowledge and information production and the inside out transformation of bodies (Clarke et al. 2010). The core tenants of biomedicalization will be discussed with more attention to processes relevant to quality and care delivery (surveillance, technoscientization and bodies).

Clarke et al. (2010) state first that the political economic forces within and without the “medical industrial complex” fundamentally shift the way health and medicine is formulated. Corporatization and commodification, privatized biomedical research as marketable and centralization/devolution of the organization of healthcare are both a factor of and increase the mechanisms for biomedicalization to exist (2010:57–58). Second, Clarke et al. present a key element of biomedicalization to be an increased attention to health, risk and surveillance. Health and lifestyles are increasingly commodified, making maintenance of health a moral obligation.

This framework of health governance as disciplining very much follows in line with the discussion Foucault's disciplinary power (Foucault 1978).

As part of the third element, technoscientization, biomedicalization highlights a shift towards the molecularization and geneticization of disease. Another key priority is the computerization and digitization of medical information. Clarke et al. locate many potentially competing aspects of a digital and centralized health information system. First, they identify the inability to document individualized medical information in standardized systems while concurrently more areas of life are considered as relational to health. Second, care standards and insurance concerns are tied to statistical outcomes research from computerized systems housing health data. Third, they state that the necessity of preventing clinical errors through the analysis of centralized data can outweigh concerns of patient privacy in medical records (2010:66–68). All three of these tensions appear in the increasing reliance on EHR data for quality measurement. Additionally, as billing practices become more and more contingent on EHR coding, both error and outcomes research are conflated, even though at odds, with information needed for reimbursement purposes (2010).

The third process constitutes shifts in knowledge and information production. Information has in many ways been democratized through internet among other things, but importantly this access to information is always already stratified. Often times, democratized information obscures the effects of stratification in knowledge. Further there has been significant cooptation of competing knowledge systems. Alternative medicine has been taken up as effective but transfers the impetus of engagement to individual responsibility. At the same time however, legitimating knowledge has been standardized through RTC and biomedical science is trusted

more than providers or clinical experience. These competing conditions within the transformation of knowledge are another element of the complexity of biomedicalization (2010).

The final element of and creating biomedicalization is the transformation of bodies. Clarke et al. explain customization and technoscientific identities as crucial to this component of biomedicalization. Biosociality has been adjusted and new group identities are constructed along lines of technoscientific discovery. Such “discoverable” genetic or molecular differences among individuals reciprocally increase the need for a highly personalized rhetoric around health and medicine. As part of Clarke and colleagues’ notion of customization, there is increased emphasis on personalized medicine and individualized pressure around self-improvement and maintenance (2010). Following the logic of biomedicalization the potentiality for efficiency in these technoscientific solutions invisibilize the highly complex meanings and implications of concepts like personalization and in this case, quality.

Ultimately, Clarke and colleagues suggest that many elements of the shift towards technology and individualization in medicine perpetuate and lead to increased stratification. “Even as technoscientific interventions extend their reach into ever more spaces, many people are completely bypassed, others impacted unevenly, and while some protest excessive biomedical intervention into their lives, others lack basic care” (2010:61). Technical innovations and the purported reach of the results of such technologies do not guarantee the universal benefit they are often praised for. Biomedicalization provides a framework for understanding the implications of increasingly blurred lines between care delivery, quality improvement, and technical solutions.

Finally, in a setting of complex electronic and nonhuman navigation and interactions, it becomes increasingly important to explicitly identify power and inequality. Ruha Benjamin (2016)

argues we must examine increasingly carceral methods of controlling human life, not just in a context of policing, but in the ways we consider innovation and containment in the field of, among others, health and medicine (2016:145). Further, she encourages scholars to pay attention to what is not visible in technoscientific development, because “noble aims such as ‘health’ and ‘safety’ serve as a kind of moral prophylaxis for newfangled forms of classification and control” (2016:150). Engaging with biomedicalization and Benjamin’s carceral approach can help in problematizing existing theories of health and technology and furthering and examination of health inequity in emerging research. As Herzig states “...the feminist imperative to place domination and subordination at the center of analysis will remain a clarifying flare in the haze...How do “stratifications” develop and persist in mobile, productive fields of power?” (Bell and Figert 2015:84). She suggests that a “turn sideways” by juxtaposing alternate theory, method and analysis may help maintain a stronger platform for such studies. The integration of the biomedicalization paradigm and a theoretical “turn sideways” can reveal how increasingly medicine and health are leveraged for competing goals. Metrics, EHRs, dashboards, and other electronic measurement systems exist as key components of healthcare quality, but simultaneously extend far beyond concerns for equitable care delivery and legitimate patient safety.

Research Methods

This dissertation employed qualitative methods in data collection and analysis to investigate how systems of quality measurement are structuring care delivery and defining quality. Specifically, this study integrated two data collection methods: 1) ethnographic observations and 2) in depth, semi-structured interviews. The study was approved by both the

University of California San Francisco Institutional Review Board (IRB) and the IRB on site at Borough Hospital prior to data collection.

I spent fifteen months (October 2018 – December 2019) conducting observations and interviews at a hospital in New York city, which I call Borough Hospital. I typically scheduled three or four days to spend at the hospital each week, but also went in for any last-minute meetings or interviews. Ultimately, I conducted over 300 hours of observations and 31 interviews with Borough’s clinicians and administrators. Centering Borough Hospital and City Network³ as a case for the interrogation of healthcare quality, measurement, and its role in healthcare systems allowed for a nuanced and in-depth consideration of a hospital culture. Borough was chosen as a field site for a range of reasons; it is a large, urban hospital with a diverse patient population and staff, it provides a wide range of services, there is a large and busy Emergency Department, it is part of a larger healthcare system, and finally, Borough has mid to high “ratings” on websites like *Hospital Compare* and *US News*.⁴ Borough is therefore a generally well-performing hospital with significant administrative interest in public reporting, particularly through an emphasis on high-quality care, and thus making Borough a distinctive site for my research.

Through this ethnography, the dissertation addresses the following research questions: How are measurements of healthcare enacted in the clinic? In what ways is quality shaped by increasing reliance on metrics and analytics? How is care delivery broadly, and direct bedside patient care, being structured or organized by the goals of quality measurement? By answering

³ Pseudonyms

⁴ *Hospital Compare* is a CMS website that allows healthcare consumers (also healthcare providers and organizations) to see information on hospitals’ performance and outcomes. *US News Best Hospitals* provides rankings for many industries, including healthcare by providing hospital ratings categorized by geography, specialties, and procedures (Medicare.gov 2020; U.S. News 2020).

these questions, I elucidate the organizational structures, actors, and systemic priorities that construct and are constructed by the imperative to measure quality in healthcare.

Ethnographic Observation

So much of what happens at hospitals is in the nuance of meetings, relationships, and systems. As Khiara Bridges put it, “My first weeks in the Alpha obstetrics clinic, my ‘field’ appeared to me as a swirl of bodies barely contained” (Bridges 2011). My first weeks felt similar, and ethnographic observations were a crucial part of becoming familiar with the bodies and spaces at Borough as quickly as possible. Based in the grounded theory tradition, ethnography was a critical method for this project. Following Charmaz’s (2014) model for grounded theory ethnography, I remained “open to the setting” and focused on “the phenomenon or process” over description. Further, by taking this approach, I was able to uncover the construction and implantation of important structures and processes, visible only through sustained ethnography.

Beyond Borough’s distinctiveness in organization and status, outlined above, Borough was also selected in part due to my longstanding professional relationship with my site sponsor, the Quality Director for the Emergency Department. Prior to attending UCSF for my doctorate, I worked at Borough Hospital and when I returned as a researcher was able to leverage my existing relationships. The ED Quality Director (as I refer to her in the rest of the dissertation) assisted with my site entrée, established trust for my participants, and was a crucial mentor as my data collection and analysis developed. Additionally, I shared findings with her throughout my analytic process. Due to her role as a physician-administration, my ethnographic observations began in meetings I attended with her, many of which had direct connections to emergency

medicine, she ran quality for the ED and worked clinically. After these initial observations and introductions, I was able to gain access to high-level staff and meetings relatively quickly and navigate the fieldsite freely throughout my time at Borough.

I observed over 30 meetings across a range of quality-related efforts, throughout the fifteen months of field work (table 1). The meetings I observed almost all took place weekly or monthly, which allowed me to attend regularly and become familiar with their structure and the topics discussed. Additionally, by attending meetings multiple times I was able to gain a keen understanding of the processes that took place or were enacted in multiple clinical and administrative areas.

TABLE 1.1

Frequency	Senior Leadership	Multi-disciplinary	Nursing	Emergency Medicine	Clinical Rounds	Health IT	Other
Weekly	Senior administration operations "huddle"	Significant Events focus groups		EM resident conference		Rapid Task Force	
				EM change of shift rounds			
Biweekly		Root Cause Analysis for CAUTI, CLABSI (nursing-led)					
Monthly	Hospital Flow Council	Medical Board Quality meeting	Nursing Leadership Council	EM Staff Meeting	Multi-disciplinary rounds		
		Significant Events	Informatics Council	EM Quality Assurance	Root Cause Analysis rounds		
		Quality and Patient Safety Goals meeting	Nurse Managers Meeting	EM Morbidity and Mortality			
		Sepsis Committee	Nursing Advisory Council	EM Ultrasound Quality Assurance			
		Stroke Committee	Practice Council				
		Interdisciplinary Trauma	Quality Council				
		Performance Improvement Committee	Interdisciplinary Falls Committee (nursing-led)				
One-time		Focused sepsis re-education (for peds, ortho, gyn, podiatry)				Sepsis and [EHR vendor] Meeting	National Quality Forum Annual Meeting
							Clinical decision-making software consulting session with vendor
							CMS Quality Payment – 3 rd Year webinar

At all these meetings, and throughout my time at Borough more generally, I took extensive notes on the setting, participants, and topics discussed. I made lists of participants in order to find their positions and follow-up with when needed. I completed detailed notes of how

participants, especially those in different disciplines or with different levels of power, interacted and how leaders of meetings presented themselves. I also made sure to transcribe specific language used when it seemed particular or unique. I was attentive to places where I could leverage an analysis of Borough as a “culture-sharing group” by engaging elements of critical ethnography (Creswell 2013). Most notes were taken by hand in notebooks and then transcribed to an online note keeping system (Evernote). As I became more familiar in some meetings, I also occasionally took notes directly in Evernote by bringing my computer to Borough, this allowed me to also transcribe what was said faster and with more accuracy. I also regularly typed up memos after a full day of observations, in which it was typical that I would attend four or five different meetings. Fieldnotes were analyzed concurrently to data collection using tagging and categorizing, within the Evernote program, for codes and themes as they emerged.

In-depth Interviews

In-depth interviews were an important component of my fieldwork, as they added specificity and staff experiences to my ethnographic observations. Interviews were used to explore administrators’ and clinicians’ experiences with and perspectives on quality, quality measurement, and healthcare delivery at Borough and more generally. Additionally, by conducting interviews and observations concurrently, I was able to use interviews to further interrogate themes raised in observations, and vice versa.

I conducted 31 in-depth, semi-structured interviews (table 2). Potential interview participants were identified by their departments and positions. In order to examine both the landscape and organization of Borough Hospital based on quality-based regulation, I purposively began interviews at a high administrative level. After a few initial interviews with the executive

leadership, I then continued interviews with staff throughout the hospital at various levels; clinical and administrative. I took this approach as I was interested in administrative interpretations of quality and care delivery as well as how initiatives or policies were spread throughout the hospital. Initially, my site sponsor initiated introductions for early interviews, I then employed a mix of purposive and snowball sampling for continued recruitment. Participants were generally contacted by email and consented at the time of the interview.

TABLE 1.2

	Senior leadership (executive staff)	Nursing department	Medicine (physicians)
Administrators (no clinical shifts)	Vice President of Operations	Chief Nursing Officer	Chief Medical Informatics Officer (also Vice Chairman of Internal Medicine)
	Vice President of Clinical Services	Nursing Director	
	VP of Ancillary Services	Nursing Quality Improvement Manager	
	Director of Operational Efficiency	Patient Tracking Department Nurse Coordinator x 2 (RNs)	
		Quality Management Coordinator (Data Abstractor)	
Clinician-Administrators (w/ clinical shifts)		Emergency Department Nurse Educator	Emergency Department Medical Director
		ED Assistant Nurse Manager	ED Quality Director
			Pediatric ED Chief
			ED Ultrasound Director
			Associate ED Residency Director
Clinicians (no admin role)		Staff RN x 4	ED Attending Physician x 5
		Staff Nurse Practitioner (NP)	ED Resident Physician x 3

Interviews were conducted with eleven hospital administrators, seven clinician-administrators (from nursing and medicine), and thirteen staff clinicians (MD, RN, NP) (N=31). Participants included staff nurses, vice presidents, and ED physicians among others (table 2). Semi-structured interviews ranged from 45 – 90 minutes and all thirty-one interviews were recorded and transcribed. I used a semi-structured interview guide that include open-ended questions about responsibilities and management contingent to their job, as well as experiences with quality, measurement, and patient care, and any other themes that emerged from observations or other interviews. When appropriate, such as during interviews with quality data abstractors, I tailored the interview guide to cover specific metric documentation.

Document Analysis

In addition to interviews and observations, I reviewed healthcare research and policy documents relevant to healthcare quality. For Chapter 2 specifically, I gathered both academic and grey literature on “quality culture” and “culture of patient safety” published between 2012 and 2019.⁵ This included research published in peer reviewed medical journals as well as reports produced for organizations outside of the academy (e.g. *Beckers, Health Catalyst*). I analyzed these materials in order to contextualize interview and observational data on quality and quality culture. I also collected and analyzed relevant policy and regulatory documents from healthcare organizations and hospital systems. This included the CMS *Specifications Manual* for the SEP-1 metric and the DOH explanation for their sepsis metric (see appendix B), which were particularly used in the analysis presented for Chapter 3. Borough Hospital and City Network’s policies on sepsis and other metrics were also analyzed, including City Network’s Quality and Patient Safety Goals. Regulatory and guidance documents from The Joint Commission, Agency for Healthcare Research and Quality (AHRQ), and the National Quality Forum were also included, often after components of each were discussed in meetings or interviews. Finally, I also collected slides, documents, and images from meetings I observed at Borough Hospital, which were de-identified to be used in my analysis.

⁵ This was a flexible document review and time range. The goal was to generally examine the research and literature that my participants, administrators and clinicians, would engage with, in relation to quality culture.

Analysis

All data were analyzed in the constructivist grounded theory tradition and thus coded and analyzed throughout data collection (Charmaz 2014). Constructivist grounded theory highlights the iterative and inductive nature of classical grounded theory while stressing the importance of flexibility and reflexivity in the method (2014: 12-14). It is based on the premise that the social world is “multiple, processual, and constructed” and that therefore there can be no neutral researcher (Charmaz, 2014: 13). Charmaz contends that researchers “construct our grounded theories through our past and present involvements and interactions with people, perspectives, and research practices,” and therefore offer interpretations grounded in the social world (Charmaz, 2014: 17). Constructivist grounded theory was well-suited for this project both for its attention to complex social environments and its commitment to iterative analysis. During my research at Borough, navigating and analyzing the complexity of the site was imperative and often led to changes in my research approach.

Interview transcripts, fieldnotes, and documents were coded in multiple phases manually and using qualitative analysis software (Dedoose). When coding, I tagged data with codes and labels based on emerging themes, meanings, actions, and similarities or differences across data. Examples of codes included “admin v. clinical,” “standardizing,” and “making data meaningful.” Lists of codes were continually reviewed, refined, and categorized throughout the data collection process. Following an initial “close coding,” I analyzed codes and themes by categorizing, sub-categorizing, and focusing on the relationships between significant codes and my research questions (Charmaz 2014). This iterative analytic process allowed me to discuss developing analysis with interviewees as well as my site sponsor and to redirect observations or interviews that may produce important data.

Situational analysis was used in both memoing and mapping throughout the analysis (Clarke, Friese, and Washburn 2017). I used situational analysis as I deepened the analysis of my data, by broadening my perspective of Borough and what I found to be meaningful (Clarke et al. 2017). Situational analysis allows for analysis to include elements of a phenomena or situation beyond only human actors in a social world. "...in theorizing the processual and interactional character of knowledge construction, it is important to grasp the interactions and practices engaged in not just by humans, but also by all of the other consequential elements in the situation" (Fosket, 2014: 98). All the elements of a situation, be it histories, technical devices or education models, are integral and conditional to the situation. This allowance fit well with my research questions and provided space for any element that emerged from the research. Situational analysis allows for the inclusion of im(material) and non-human elements that construct situations, both of which are present in my study of healthcare measurement and quality. Ultimately, Clarke's method brings attention to the complexity of the situation and provides the tools to showcase the often messy and uneven aspects of social processes. This was key in my analysis because complex factors like technology and varying meanings of words like "quality" emerged as key actors.

Clarke's mapping tools were used throughout my analysis. Situational mapping allowed for breadth and fluidity in understanding my research fieldsite. I also used social worlds maps and positional maps, as analytic tools to sort through my data and identify visible (and invisible) positions and themes emerging from the data (Clarke et al. 2017). I mapped aspects of Borough's organizational structure as well as relationships between data, technology, and staff roles. Memoing during and after observations and interviews was also a significant aspect of the analysis (Charmaz 2014; Clarke et al. 2017). Ultimately, analysis for this dissertation was built

from phenomena that emerged as both relevant and recurrent (Charmaz 2014). Both grounded theory and situational analysis approaches allow for flexibility in research design and respond to the data as it appears (Charmaz 2014; Clarke 2005). Iterative coding, mapping, and memoing were crucial in developing analytic categories and preliminary themes central to my findings.

Navigating Hospital Research

Once I began my fieldwork, I quickly realized the importance of my observations and decided to increase the time I spent at Borough early on. Building from my appreciation of hospital ethnographies and histories (Bridges 2011; Oshinsky 2016; Sweet 2012), I decided extending ethnographic observations would best serve my research aims. Ethnographies can uncover unexpected elements of cultures and phenomena that often remain hidden. While I continued to conduct interviews, observations increasingly became a larger part of my fieldwork. I was particularly inspired by two books about other New York City hospitals, which helped to not only frame my analysis of “culture” in Chapter Two, but also to value the distinctiveness of the hospital setting. In both *Bellevue* and *Reproducing Race*, the authors spend time describing the “scene” of it all. I felt this was important to my research as well, because many elements of hospital cultures exist in the descriptions and details of the physical space itself and the histories and experiences it holds. In my research at Borough, ethnography led to key findings about the way quality policies and initiatives were discussed in meetings versus on the clinical floors, as well as unspoken interactions and relationships between both individual staff and larger departments.

The ease in which I was able to gain entrée, begin observations, and schedule interviews was due to an existing relationship with Borough Hospital. Not only did I have a strong

professional relationship with my site sponsor, I also knew some administrators and clinicians before conducting my research. As mentioned, I worked at Borough prior to this research. I worked in two departments; Emergency medicine and Patient Relations, both of which exposed me to different aspects of hospital care and increased my comfort in clinical spaces. Maintaining my relationships with Borough staff allowed me to have quicker access to high level meetings and set up initial interviews with senior leadership clinicians. Further, having already worked there increased my visibility and familiarity around the hospital.

While Borough had a generally diverse workforce, senior administration was predominately white. Therefore, due to my position as a young, white woman it was relatively easy for me to fit in while moving around the hospital, and especially when attending meetings alone. I was able to dress the part, I was given a volunteer ID badge, and because I knew how to navigate and communicate appropriately in clinical spaces, I essentially had access to every floor and unit that was not locked.⁶ I was comfortable spending time at Borough from the onset of my research. My past experience at hospitals, including working at Borough specifically, helped me avoid being tied to one informant and attend meetings more freely. Factors like these undoubtedly effected my research approach, prompting me to continually memo and reflect on my own positionality.

Building from a situational analysis and grounded theory approach, I was attentive to both reflexivity and power inequities in my methodological choices. Conducting research in a hospital required me to also consider the sites where I was “studying up” (Fine 1994; TallBear 2014). The power dynamics and situatedness of research in healthcare settings, with administrators and clinicians, are important to take account of. TallBear’s critical, feminist

⁶ I had special ID card access for the emergency department but did not, for example, have access to the maternity unit or psychiatry.

standpoint was helpful in locating my commitments within this research. In addition, by considering feminist methods alongside critical ethnography (Creswell 2013), I was sure to integrate health equity and critical perspectives, despite a focus, at least partly, on hospital administration and organization. Charmaz offers grounded theory as a method in a “constellation of methods,” pointing to the benefit of qualitative methods that may differ in standpoint, but which share an inductive logic and commitment to praxis (2014: 14). Thus, the inclusion of feminist and critical perspectives helps to recenter power and inequality in research especially on biomedicine and technoscience (Herzig 2015).

Borough Hospital and City Network

In this dissertation I use pseudonyms to refer to my research site and the larger healthcare system it is a part of: Borough Hospital and City Network. Borough Hospital is an approximately 600-bed hospital within the City Network healthcare system in New York City. Borough was first built in the late 1800s and currently extends over the majority of two square city blocks. The building now reaches up to eight floors, after being built and rebuilt over decades. Many of the rebuilds and additions throughout the years do not connect to each other, contributing to the maze-like organization of clinics and offices on site. Borough staff often have to walk patients and visitors throughout the hospital, as they try to find a third floor that is somehow different than the third floor they were on in a different area. These types of physical specificities seemed to contribute to the character of Borough. Staff were friendly and eager to help but often seemed to also gently debase the structure itself, painting a picture of a community-oriented but perhaps unassuming hospital to the observer.

Borough is a voluntary, acute-care teaching hospital with multiple healthcare training programs, including strong residencies and fellowships. Considered one of the larger hospitals in the city, Borough serves a range of patients from a wide geographic area and provides primary and specialty care in both inpatient and outpatient settings. The Emergency Department (ED) is on the first floor of the hospital's main building and houses approximately fifty beds, including multiple isolation rooms, three trauma rooms, and a fast track area. Based on both the time I spent in the ED and my participants' accounts, the ED was almost always busy. It was rare to walk down the aisles of curtained "rooms" without seeing patients and their families overflowing from their designated areas. Especially when the ED was over capacity, patients on stretchers seemed fill any vacant space. I was not particularly alarmed by the conditions of the Borough ED, most likely because prior to this fieldwork I had spent a significant amount of time in emergency rooms as well as in Borough's ED. However, in approaching my observations and fieldnotes, I did note just how quickly I once again became somewhat desensitized to the commotion of it all.

Staff however, navigated the crowded space quickly and gracefully. Nurses and nurse techs always seemed to be the most visible, often because they were at their mobile workstations outside patient rooms or next to beds.⁷ In the center of the primary space in the ED, there are two built-in workstations with desktop computers and chairs; a nurse's station and a doctor's station. Typically, between four and eight attending physicians are working along with five to ten resident physicians and usually around fifteen nurses. The Borough ED treats approximately 110,000 patients annually. As a clinical unit and department, the ED generally maintains some autonomy due to distinct patient flow, acuity, and procedures. In interviews, some ED physicians

⁷ Mobile workstations are typically called COWs or WOWs; computers on wheels or workstations on wheels.

reported that ED leadership historically had leveraged significant prestige and authority within the wider hospital. Remnants of this legacy seemed to linger, contributing to what participants called comradery or the ED family.

For many years Borough Hospital has been affiliated with a prestigious university and medical school in the area. Functionally this meant that Borough was a teaching facility, faculty members had affiliations at the medical school, and, ostensibly, Borough could claim the prestige of the university name. At the end of 2015 however, Borough, formally a largely independently managed hospital began to be officially consolidated into a larger New York healthcare “network,” which I refer to as City Network throughout the dissertation was affiliated with the same university medical school, which seemed to ease parts of the transition. As the consolidation was increasingly operationalized throughout 2016, Borough added the City Network prefix to its name in 2017.⁸ Despite this, Borough maintained a significant part of its leadership structure, including its president and executive administrators.

At the time of my field work in 2018 and 2019, Borough appeared to be very much still in the midst of the consolidation. Clinical and administrative protocols were being standardized, clinical divisions were continually merging or changing leadership, and most staff discussed the merger as a still active process. Borough Hospital’s consolidation into the City Network system plays a significant role in the context of my research. However, while this is indeed a distinction, it is also largely reflective of what is happening in US healthcare more broadly and especially in New York State.

In the greater New York City area specifically, four systems have established themselves as the primary sites of healthcare delivery in the region. In addition to the city’s public hospital

⁸ Throughout this dissertation I use “Borough Hospital” to refer to my fieldsite in all cases, despite the technical name change. I specify if I am discussing something before the consolidation.

system, NYC Health and Hospitals, these multi-hospital systems, sometimes referred to as the “big four,” have grown significantly in the past five years, through extensive acquisitions and mergers (Uttley et al. 2018). According to a 2018 report from the New York State Health Foundation and MergerWatch, 41 hospitals have closed in the last 20 years, hospital beds continue to be decertified, and the “big four” hospital systems hold a “combined total of \$14.2 billion in net assets, giving them significant economic power and ability to shape the health system” (Uttley et al. 2018).

The broader context of healthcare consolidation and corporatism is important for two major reasons. The first, which was discussed in the introduction, is the significant role of corporatism in increasing quantification and standardization in healthcare broadly. With increasing consolidations and mergers, hospital systems begin to monopolize control, which can function as a catalyst for particularly corporate methods of management and standardization.⁹ Secondly, in the case of Borough it was an important factor in my fieldwork and in the accounts of Borough’s staff. It was rare the merger wasn’t brought up by participants and it often colored their descriptions of administration or senior leadership. However, the consolidation itself was not the focus of my research, instead it helped to highlight the ways quality was playing out at Borough. Descriptions of Borough before and after City Network, do not matter as much as the mechanisms of monitoring and governing that emerged from my fieldwork. Quality and quality measurement were not created at Borough based on its consolidation into City Network, but the context of Borough’s current administrative changes, did help to expose the increasingly complex relationship between quality and care delivery.

⁹ We see this particularly as part of the proliferation of “lean” business models, as discussed in the introduction.

Overview of the Dissertation

Broadly, this dissertation examines the ways in which quality measurement in healthcare organizes, structures, and defines care delivery. Healthcare quality and care delivery are two vast concepts in themselves, as such I focus on the intersections and processes that tied the two together at Borough Hospital. I was particularly interested in the work quality performs in the clinical setting, and how care delivery is thereby implicated. Thus, this dissertation explores the myriad conditions central to the construction of that work. Chapter One begins with an introduction to the dissertation and outlines the theoretical frameworks I engaged throughout my analysis. The first chapter also includes an explanation of my research methods and a description of my research site, Borough Hospital.

Chapter Two examines *quality culture* at Borough Hospital. I show how the meanings of culture and organizational culture are leveraged to enable neutral interpretations of *quality culture*. At Borough, notions of quality and culture maintained both far-reaching influence despite their diffuse meanings. For those reasons, and through the convergence of evidence, best practice, and standardization, quality is guaranteed as an inevitable fix all. Further, this chapter uncovers how staff engagement and accountability are equally implicated in the disciplining of *quality culture*. In sum, I show that operationalizing quality culture in fact distances quality away from the bedside, as prioritizes standards and data. I argue that quality culture acts as an agent as measurement is enacted in clinical settings.

In Chapter Three, I turn to a specific case of quality measurement: metrics for sepsis treatment. This chapter functions as a case study in order to examine the metrification of complex healthcare processes. I trace the efforts of clinicians and administrators at Borough as they manage, report, and attempt to comply with multiple, distinct metrics for sepsis treatment.

Through the metrification of sepsis treatment, I show how documentation and compliance is prioritized and technical solutions are increasingly relied on, often to the detriment of clinicians' workflow. This chapter reveals both the distinctiveness of protocolization and the clinical consequences of attempting to measure care for complex conditions. I assert that metrics for sepsis reorient care towards future measurement and emphasize compliance as quality.

Finally, the fourth chapter highlights the navigation of quality throughout the hospital. This chapter considers hospital flow and the quantification and metrification of patient movement at Borough, in order to quality on a larger scale. It shows how surveillance and tracking are crucial mechanisms in the production of automated data, which in turn is necessary for the optimization of flow. Here again, we see technical solutions to clinical problems favored and the staff roles reorganized in accordance with metric requirements. I argue that an increasing reliance on tracking and data contributes to the narrowing of clinical decision-making. I contend that the prominence of flow as a key indicator of quality uncovers how protocolized, data-driven decisions are valued over bedside decision-making in quality measurement. These findings—quality as an actor, protocolization, and data-driven decision-making—taken together taken together are the basis for what I call *abstracted surveillance protocols*; measurement-based, clinical protocols that rely on surveillance and abstracted documentation data to standardize processes for quality care. In the dissertation I describe three facets of quality measurement related to these processes: *quality culture* asserts agency through the conditions of quantification and metrification; protocolization is increasingly utilized to demonstrate quality; and quality care-related decisions rely on systems of automated data. These processes form the basis for *abstracted surveillance protocols*. I conclude by arguing that quality is being (re)defined by

abstracted surveillance protocols that distance it from the bedside. I summarize theoretical implications and contextualize my research in the context of the current state of healthcare.

CHAPTER TWO: SHAPING THE INFRASTRUCTURE FOR QUALITY CULTURE

Introduction

An essential transformation in healthcare policy and hospital management over the last decade has been the advancement of alternative payment models, and particularly value-based care. Value-based care prioritizes value and quality over cost of care and ties patient outcomes to payments and Medicare reimbursements for hospitals. In these models, quality, and quality measurement are highlighted as crucial elements of improving care delivery and outcomes. Quality is implicated to emphasize many healthcare goals (e.g. successful outcomes, patient-safety, high-level performance, efficiency, cost reduction, patient satisfaction, staff engagement, standardization, and IT success) (Burwell 2015; Gilman et al. 2015; Lemak et al. 2015). At Borough, quality was often employed interchangeably with *quality culture*¹⁰ by clinicians and administrators. Throughout my field work *quality culture* emerged as a highly sought-after demonstration of quality at Borough Hospital.

Thus, this chapter considers the way quality is enacted in the hospital setting. Tracing the use and utility of *quality culture* specifically, I investigate how the organizational setting and management of Borough Hospital helps to sets a foundation for the operationalization of *quality culture*. Notions of culture play a significant role in the enactment of *quality culture*; I therefore took a critical approach in my analysis of culture. The preoccupation of this chapter is to consider the work “culture¹¹” is doing in the hospital setting, and to what end. By considering the

¹⁰ Italics are used in the introduction and conclusion to indicate quality culture as an organizational entity, which I will show asserts agency. *Quality culture* should be read as italicized throughout the chapter.

¹¹ Similarly, to quality culture, culture is used specifically in this chapter. Generally, I refer to culture in the same context my participants do in each interview excerpt. When culture is in quotations, it is to emphasize its range of meanings.

use of culture as a tool, I am able to assess both the conditions and construction of *quality culture* as it intersects with care delivery.

“Culture,” in this case, is not one entity but rather a concept that can be tailored and leveraged to serve different purposes. Particularly in the context of healthcare, and its growing emphasis on measurement and quantification, the use of culture should be noted for its untethered meanings. That is, “culture” maintains a pliable and diffuse meaning in the midst of increasing standardization and corporatization. It is that very contradiction that motivates this chapter. This moment of discord, between the construction of the tool – culture, and its purported function – quality, is what signals the significance of *quality culture* in my data. As will be asserted in this chapter, I argue that *quality culture* acts as its own agent in the management of care delivery, ultimately distancing quality from the bedside.

Theorizing Healthcare Culture(s)

I engaged with three broad theoretical considerations in the framing of this chapter, which I will briefly describe here. First, organizations and organizational culture; second, tacit knowledge; and third, surveillance and disciplinary power. As discussed in the introduction, theories of organizational culture emerged from classical thinking on organizations and labor (Durkheim 1984; Weber 1922). Growing out of analyses of how people work together and how power is asserted throughout work and ownership, organizations became a key site for investigation (Cockerham 2015; Marx and Engels 1978; Weber 1922). Theories of more contemporary organizational structures have been advanced as societies adapt and modernize (Deal and Kennedy 2000; Schein 2010). Organizational cultures are highlighted as a central component of the way organizations function. Schein (2010) argues that “artifacts” can hold

important aspects of organizations that in turn convey cultural meaning. In his approach, artifacts can be verbal, behavioral, or physical and often appear through the values and rituals that construct the realities of organizational culture (2010). This account of organizational culture taken with theoretical approaches to healthcare culture specifically, provides a foundation for this chapter's examination of Borough's culture. Mannion and colleagues, specifically consider organizational culture in the context of healthcare quality improvement (Davies, Nutley, and Mannion 2000; Jacobs et al. 2013; Mannion and Davies 2018). Engaging with Schein, Jacobs et al. (Jacobs et al. 2013) purport that culture can "function as a coordinating device" for quality initiatives. Importantly however, Mannion and Davies also theorize that the term culture is often used as a metaphor for one cause while neglecting other aspects of quality healthcare and therefore has to be used thoughtfully (2018).

Aligning with Schein's theoretical framing of cultural artifacts and values, knowledge has also been theorized as an important aspect of healthcare organization and engagement (Anderson 1992; Lawrence 1985). Tacit knowledge refers to shared knowledge or understandings that are generally unspoken and untaught (Collins 2010; Polanyi 1966). Polanyi (1966) states, "the observance of a set of rules which are not known as such to the person following them" (50). Tacit knowledge has been taken up in research on healthcare and medicine as well. Scholars have examined how knowledge is shared and decision-making is navigated by tracing the role of tacit knowledge in healthcare settings (Jamshidi et al. 2018; Kothari et al. 2011; Yoo et al. 2019). Finally, this chapter is also framed by theories of surveillance and disciplinary power (Foucault 1978, 1995), both of which are key to understanding the function of quality, patient safety, and engagement in clinical settings. Building from Foucault's regimes of power, others have exposed how in healthcare settings, discipline and governmentality are most effective on a social level

when professionalism is leveraged (Martin et al. 2013). I engage with these theoretical frameworks in order to examine the work *quality culture* performs at Borough Hospital.

Methodological Choices

Based on my past experience working in healthcare I knew the idea and use of “culture” carried important meanings in healthcare settings. While every workplace has an organizational culture, I felt there was something distinct about the way culture was used in these settings. This initial hunch became increasingly present in my field work as participants across various interviews and observations mentioned culture unprompted. I never asked my participants about culture, organizational culture, or quality culture directly. If a participant used the term culture, specifically, or indicated they were describing something similar to organizational culture, I would inquire further about the topic, but I did not want to push my participants to analyze “culture” itself or question a word they used as being self-explanatory or obvious.¹² Instead, I asked follow-up questions that aimed to expand the interviewees’ use and explanation of culture. Culture also came up often in observations. When culture was mentioned in meetings, I made sure to note the context of its use and how it appeared to be interpreted by the group.

I analyzed these data in the grounded theory tradition. While initially coding interviews, I began to also code interviews and portions of interviews that covered notions of culture, for this chapter. Additionally, as notions of culture continued to emerge from my data, I conducted a brief review of the quality culture literature. I collected healthcare content specifically addressing three uses of culture relevant to the field: quality culture, patient safety culture, or healthcare culture. I included both academic-medical research and grey literature in my review. My analysis

¹² I note one exception to this when I asked a nursing director to expand her explanation of “culture change.”

in this chapter builds from work and theory on organizational culture, knowledge management, and surveillance. I take the use of culture at its face value and examine how it intervenes on ideas of quality and care delivery.

The Eighth Floor: Governing “Culture”

In hospital ethnography, the setting is a central component of any examination of a clinical space. In this section, I focus on the ways organizational culture is positioned at Borough, particularly through leaderships’ role in narrating and bounding ideas about culture. Thus, I start with a brief description of how administration and management function at Borough Hospital. As described in the introduction, Borough is a large, urban hospital. The main building is nine floors and covers the majority of two square blocks. The main administrative offices of Borough’s senior leadership sit primarily on the eighth floor. While the President’s office is one floor above, next to an executive conference room, all the other members of the executive team have offices in one hallway on the eighth floor. The administrative structure is quite typical of a hospital.¹³ Despite the merger, Borough still maintains internal management of its service lines and departments, there is a Chief Operating Officer, and Vice Presidents for Operations, Clinical Services, Ancillary Services, followed by various directors and managers of many departments. Additionally, there is a Chief Nursing Officer (CNO), Chief Medical Officer (CMO), Chief Quality Officer (CQO), and Chief Medical Informatics Officer (CMIO); all clinician-administrators, who manage clinical affairs alongside clinician division chiefs and chairmen. Though all administrative choices and decisions are ultimately passed through City Network, I

¹³ Note that the consolidation of financial services was a major aspect of the merger with City Network; positions in these departments, such as CFO, are now based out of City Network.

observed that Borough personnel retained some autonomy in administrative interactions and organization.

Anecdotally, Borough Hospital was largely conveyed by participants as having strong and distinct organizational culture. Some contributed this to the hospital's physical layout, while others noted the patient population and its history in the community and New York City. The merger between Borough and City Network was a catalyst for many changes and carried many challenges, but it also created a particularly interesting case for study. But this is not a before and after story. Rather, Borough's consolidation into the City Network system offered a moment of uncertainty. A moment when, for the purposes of this chapter and as I discuss further in the introduction, quality culture can be carefully assessed. The merger brings the function of organizational culture and administration in the context of quality, into sharp relief. The following sections are intended to situate the culture and quality culture based on how they were employed at Borough.

Explaining Culture in Healthcare Settings

My analysis of administrative processes was central to my project. One element of my research question was examining how quality and policy related to quality was translated throughout the hospital and to the frontlines. Thus, I interviewed administrators first. This interview sequence became increasingly useful as notions of culture emerged from the data. As discussed in the introduction, administrative departments and executive leadership are occupying more and more space as healthcare continues to corporatize. Therefore, I found it crucial to focus on the ways culture and organizational culture were enacted in administrative settings in order to further analyze constructions of quality.

One artifact that was particularly distinctive to Borough's organizational culture was the prevailing presence of "the eighth floor." The eighth floor was mentioned repeatedly in my interviews. At the most basic level, the eighth floor quite literally represented the physical distance and presence of the hospital's administration. However, a symbolic meaning emerged from the data as well. I found a clear characterization of the eighth floor and what happens there as distinctly connected to both Borough's culture and the wider hospital management.

I found that hospital staff consistently used the term "eighth floor" to refer to hospital administration in a way that sounded simultaneously casual, dismissive, and authoritative, invoking the top-down figurative and literal structure of the hospital. For example, when I asked the Emergency Department Medical Director about how he balanced his time between administrative and clinical duties, he told me, "then I get called to the eighth floor and... it's coffee patrol, coffee, going to this meeting, get coffee, go get coffee, go to that meeting." As the Medical Director indicated, there was also a general sense in interviews and observations that all that happened up there was meeting after meeting, and he called it "coffee patrol." Other administrators referred to their own jobs and duties as the eighth floor as well: "when we have to do our eighth-floor things, it kind of takes over." The VP of Ancillary Services, along with others, indicated that their administrative time, spent in particularly meetings, would take over their days. Whenever I asked non-administrative participants' questions about leadership or hospital policy, their answers almost always pointed to what happened on "the eighth floor."

At Borough, the eighth floor seemed to assert passive surveillance over the hospital from afar. The eighth floor was busy, a revolving door of important meetings with significant implications for patients, clinicians and staff throughout the hospital. It was also the site of critical efforts to improve patient care, quality, and efficiency. Most of the efforts appeared to be

centered on quality but remained bounded to the eighth floor. It was after the meetings that these efforts filtered down throughout the building. Moreover, the connections between what happened on the clinical floors and management's role appeared to be lost in connotations of the "eighth floor," at least partly, due to its use colloquially.

Clinicians often wrote off what happened on the eighth floor as distinct from their own clinical work because it was difficult to see the materialization of these meetings. The implications of the "eighth floor" became diffuse because of the endless range of "quality" meetings that took place. However, simultaneously, the "eighth floor" took on meaning because so many of the quality efforts were announced from there. The eighth floor appeared to both lose and take on meaning because of the breadth of its range both when used colloquially and in its assertions of quality improvement. I found the eighth floor to be a metaphor for what I will later show is the distancing of quality from patient care, and from the bedside.

I observed the surveillance from the eighth floor extend throughout Borough through what the ED medical director termed, "coffee patrol." I consider "coffee patrol" a proxy for the packaging of administration and their policies, and further interpreted coffee patrol to be the very active and engaged side of what happens on the eighth floor. Administrators are very dedicated and serious about improving quality and likewise their meetings are aptly named in accordance with quality culture (e.g. Quality and Patient Safety Goals Meeting). However, while coffee patrol only happens on the eighth floor, the patrolling piece extends. Clinical floors and units are figuratively patrolled by policies and expectations for quality culture are asserted by the eighth floor and enforced by mid-level staff. A disciplinary power seemingly emanated from the eighth floor and coffee patrol.

The presence of localized and specific terminology, like the eighth floor and coffee patrol, undergird assertions of organizational culture. Further, as it becomes unmoored from any physical manifestations and circulated as a symbol, this type of local language is part of the enactment of quality culture throughout the hospital. That is, organizational culture came to be an actor and have force in particular ways that were specific, yet oddly diffuse and detached from patient care at the bedside. However, a symbolic meaning emerged from the data as well. I found a clear characterization of the eighth floor and what happens there as distinctly connected to both Borough's culture and the wider hospital management.

Enforcing Quality Culture

In this section I draw from interviews with Borough Hospital administrators and from my observations in administrative meetings, where I participated in the "coffee patrol." Administrators in this group had high level responsibilities, spent most their time in meetings with other administrators and clinician-administrators, and their offices were on the eighth and ninth floors. These were the main participants of "coffee patrol." In what follows I trace the ways I saw ideas of culture, both named explicitly and implied, used and engaged with by senior leadership. The two primary spaces where this happened were in discussions of Borough's specific organizational culture and of quality culture.

First, participants referenced culture primarily in relation to a shared organizational mission or credo. Participants often pointed to traditions and the expectations of staff at Borough Hospital when explaining what they meant by Borough's culture. They easily pointed to a mission statement or posters on the wall outlining a doctrine of respect as the foremost explanation of culture:

One thing we added to our credo this year that's just being rolled out is, where we used to have diversity and inclusion, now they're adding belonging, because we can be diverse and we can try and include everyone, but you really need to feel like we belong to [Borough]. I think that's a big focus of ours as leaders is that every job is just as important.

Such doctrines are common in hospitals and generally outline similar values and expectations for staff, such as respect, empathy, teamwork, and of course patients first. The expectations listed in Borough's credo purportedly helped to build a culture idealized by healthcare administrators, and in this case by the eighth floor.

My understanding of the use of culture expanded, and notions of culture became more complex as my observations continued. Participants from the eighth floor were extremely well-versed in presenting the institution's overall visions and strategies, and they readily offered practiced corporate explanations highlighting service lines and innovation. While promoting company visions for expansion and success may be a common component of many hospital administrators' positions, my participants were also quick to discuss their roles and responsibilities in terms of the local, in terms of "what makes Borough, Borough" (1911). Their willingness to acknowledge Borough's distinctiveness and promote it in discussions about quality and care delivery changed my analysis. It seemed to emphasize that culture was considered integral to Borough's commitments to improved care delivery, be it through efficiency, safety, or standardization.

Perhaps most unambiguously, administrators on the eighth floor brought up culture when comparing Borough before and after the merger. Generally, senior leadership had very little incentive to integrate with Borough's existing customs, or organizational culture, because of the consolidation. Rather, they were tasked with being champions of establishing the policies, procedures, and norms of City Network. My participants often explained this as a change in the

culture of Borough Hospital. The VP of Clinical Services noted, “It's been a lot of change here, since City Network took over and culturally, you know, the transitioning of sort of how City Network operates and what the expectations are of City Network and trying to translate that to the staff.” Here, she emphasized that there were major cultural differences between how Borough had been managed and the new expectations of City Network. She explained these differences in relation to new operational policies and regulations from City Network, and the need for revised staff trainings. Participants seemed to use culture to simplify a whole range of organizational norms that were changing.

Eighth floor administrators also reported spending a significant amount of time navigating positive and negative changes related to the merger. The Director of Operational Efficiency¹⁴ described trying to balance how to both change and nurture Borough's culture:

The standards have changed, and the expectation is to adopt and implement ten, twenty initiatives. It's, it's a lot, you know, and then also how do you retain what makes Borough, Borough, which is an academic center in a community setting versus adopting the corporate nature of—well, their perception of a corporate nature of City Network. Right? And it is, it's very different. I mean, there are certain, there are like little, there are differences. There's a cultural difference.

She quickly corrected herself when she referred to City Network as corporate, although it aligned with other administrators' descriptions of the culture change. The standards and initiatives she mentioned are similar to others' accounts of increasing regulations, standardization, and overall modernization. This director instead wanted to express that it was the perception of corporate culture that characterized the merger, not actual corporatism.

Longtime staff can often perpetuate traditions, good and bad, establish expected norms without insight from other organizations, or lag behind emerging technologies. But while it was

¹⁴ This position and role are further described in Chapter Four.

clear in interviews that there was something distinctive, and perhaps dated, about Borough's culture, none of my participants referenced the old culture in terms of lacking in technologies or specialties. Instead, the "oldness" of Borough was very much to do with this idea of its culture, and of a shifting expectation of the hospital's organizational norms, standards, and policies. AVP explained that, "things have been done one way for so long." Culture was often used as a euphemism to distinguish a traditional or old-fashioned working environment from a corporate, modern working environment. Similarly, the Director of Operational Efficiency described it as:

I also think too, right now it's about, I don't want to say finding the culture, but how do you blend the culture of City Network versus Borough...because you have a lot of employees here who have been with Borough for a long time who are not accustomed or not experienced the pace, right, that I think City Network is at, and this is not to say that the people at Borough are lacking. I think the way I look at it is Borough today is what City Network was probably seven years ago or ten years ago.

Using words like accustomed and *not* experienced just added to the somewhat paternalistic tone of her description of Borough. Stating the hospital may be ten years behind, and implying it had something to do with how long staff had been employed there, felt like it had more to do with notions of tradition and insularity.

At times, administrative participants described Borough's culture in a positive light. In fact, the very merger with City Network that served to highlight some of the ways in which Borough was behind the times also worked to prime its workforce for continued transformation. They described the "old Borough" and its culture now as adaptable and ready for change, indicating that something unique about Borough made it flexible in the merger. The VP of Operations explained,

Here, there's been so many changes that I think people are more, I don't want to say malleable in a bad way, but there's some thought, well this is where we're going, so we just have to work at it. We've been fortunate that again [that] a lot of our leadership and management understand that and accept it and work to make it better as opposed to just resistance to change.

Mentioning changes in leadership that occurred before the merger, the VP had noticed that Borough's staff was not as resistant to changes as one might expect. She pointed to something special about the hospital's clinical leadership that helped to foster a more nimble and responsive culture.

Moreover, the high retention among Borough's employees, that was noted above to be an indicator of an outdated pace and culture, was at other times thought to signify a deep loyalty of the staff to the institution:

The change is hard and, but I think people [are] here for thirty years for a reason, right? They are committed to this hospital for reason. And how do we make sure that we keep that to, in order to have employees continue to be committed to this campus.

Something about Borough, that no one seemed to really name, a culture that contributed to its distinctiveness, here is portrayed as engendering enduring commitment from the staff. In this case, being employed by Borough for thirty years was seen as a good thing and something that should be nurtured. Contrasting directly with what was sometimes even simultaneously said about longtime Borough staff being stuck in their ways. Thus, "culture" emerged from these data as holding a significant range of varying meanings and assumptions.

The ubiquity of the use of both the term, and the idea of culture pointed to some black boxing. Any complexity in the meanings or interpretations of culture seemed to be invisibilized by cultures inevitable role in healthcare organizations (Collins 2010; Latour 1987). My participants struggled to offer a concrete definition of the term, and seemed to assume its meaning to be obvious:

We were working mostly on standardizing orientation, putting together a program for educational days, skills fairs, how can we really, get nurses to come to things and work to be, I guess, interested in continuing their educational experiences. And I think that's a culture change which we're trying to work on here... which is challenging, you know, when you're used to, 'I'm not doing things that way.'

As I spoke with this Director of Nursing, she continued to use the word culture interchangeably with descriptions of work practice changes, training plans, and efforts for staff engagement. When I attempted to ask for her explanation of “culture change,” it was hard for her to define it in and of itself, without providing this wide range of examples.

At Borough, while participants struggled to define the term explicitly, I found that many seemed to share tacit knowledge of what culture itself is and of the range of activities notions of culture could be applied to (Collins 2010; Lawrence 1985; Polanyi 1966). In both interviews and observations, participants supported an assumption that “culture” was either a clear reference to organizational culture, or a seemingly neutral way to refer to any particular dynamic or process under review. However, given that Borough had just been through and was continuing to deal with some major changes — in which ‘culture’ was being invoked as an explanation, a rate-limiting factor, a benefit, and an object of intervention itself — I argue that conceptions of culture are neither neutral nor simple (Jacobs et al. 2013; Mannion and Davies 2018). Instead, they are infused with complex ideas about organizational improvement, performance, efficiency, and quality of care, and how each of these ought to be achieved.

In this section I examined the modes in which culture has acted as an inevitable and neutral component of healthcare organizations. Hospital administration, and in Borough’s case, the “eighth floor,” play a significant role in the explanations of culture and organizational cultures in these clinical settings. However, it is not necessarily only about Borough’s eighth floor, instead we see how this metaphor for hospital administration took on a breadth of meaning both rhetorically and in improving quality. The quality efforts that emanate from the eighth floor and perceptions of them like “coffee patrol,” helped to form a layer of passive surveillance filtered from the eighth floor down with the aim of shaping organizational culture. Localized and

colloquial terminology, like that of Borough's, is part of an enactment of quality culture. Moreover, the general neutrality and inevitability of organizational culture undergirds the framework from which quality can be embraced.

Evidence-Based Quality Culture: Quality Directives from Healthcare Literature

As in any workplace or communal environment, culture can be used to explain many localized dynamics and processes. In the previous section, I noted a connection between the ostensibly neutral references to organizational culture my participants made and rhetoric around establishing a quality culture in healthcare more broadly. Promoting and establishing quality culture in hospitals has been supported in the healthcare industry literature for more than a decade, in both grey literature¹⁵ and academic research. In fact, much of the specific language used by hospitals to turn their organizational culture towards a culture of patient safety and quality, is taken directly from evidence cited in leading journals and healthcare leadership resources. Language about “consistency,” “visibility,” and “engagement,” which I heard repeatedly in interviews and observations, is pulled directly from papers from the *Annals of Internal Medicine* and *Beckers Hospital Review* (Becker's Healthcare 2012; Weaver et al. 2013).

As such, I conducted a focused review of healthcare content about quality culture, patient safety culture, and healthcare culture. I included both academic-medical research found in journals such as *New England Journal of Medicine (NEJM)*, and grey literature found on healthcare improvement websites or magazines like *Patient Safety & Quality Healthcare*. This body of literature offers support and resources, largely for healthcare administrators in the midst

¹⁵ Grey literature typically refers to materials and/or reports generated by companies or organizations outside of traditional academic publishing.

of attempts to change hospital norms or improve quality. More recent papers range from claims about the “right” organizational culture to systematic reviews of safety interventions that will transform quality (Braithwaite et al. 2017; Curry et al. 2018; Swensen and Mohta 2019).

Healthcare quality literature offers evidence on quality culture following the same trajectory of top-down culture change, presented by my participants. Ideas about organizational culture undergird further claims on quality culture. In a 2019 “Insights Report” from *NEJM Catalyst*, physician leaders reported that organizational culture was central for improving healthcare. They state, “Organizational culture is the essential element in meeting health care goals...Culture, more than anything else, drives performance” (Swensen and Mohta 2019). The report references “culture” and “organizational culture” bluntly but with the same assumptions of neutrality purported by Borough’s administrators. These types of assertions about organizational culture carry heightened authority when published, especially in journals like *NEJM Catalyst*. *Catalyst* is *The New England Journal of Medicine*’s specialty journal for the “latest innovations, big ideas, and practical solutions for health care delivery transformation,” curated for both administrators and clinicians (NEJM Catalyst 2019).

There were many references to culture with very little context in the literature, which seemed to run parallel to how I heard culture used in interviews and observations. In the literature, “culture change” appeared frequently as the remedy for poor performing hospitals and staff (Flemons, Feasby, and Wright 2011; Ingelsson, Bäckström, and Snyder 2018; McGlynn, Schneider, and Kerr 2014). My participants advanced a similar narrative, suggesting that all healthcare workers understand what culture should be and that change is always for the positive. In the same *Catalyst* report, physician leaders offer a definition: “Culture is the way in which organizations make decisions about what they are and aren’t going to do, and the cumulative way

in which employees experience their jobs and lives at the organization” (Swensen and Mohta 2019). This definition may be accurate, but it also is vague and uncited. What it does succeed in, is following the logic of organizational culture as an inevitable and neutral force. Their definition presumes an organization makes decisions in a vacuum and that employees may have just one experience of their place in an organization, both of which we know are not often the case (Mannion and Davies 2018). However, by participating in this shared narrative, culture begins to act as a blank canvas, ready for healthcare administrators’ priorities. Without detail and specifics, organizational culture, and thereby culture in this case, can continue to occupy a position readily available for the construction of quality.

In much of the literature, one construction of quality is based on its intersections with patient safety culture. Establishing a “culture of patient safety,” is championed in healthcare industry literature (Becker’s Healthcare 2012; IHI 2019b; Samora et al. 2019; Weaver et al. 2013). Studies both in the grey literature and in academic journals have purported that a “culture of patient safety” is the best thing to ensure high quality care. Patient safety is a cross discipline priority; both nursing departments and medical staff are included in efforts to ensure a “culture of safety.” On their website, the American Nurses Association (ANA) highlights their commitment to safety: “When safety is given prime importance, everything else begins to fall into place” (ANA n.d.). Similarly, an early systematic review of safety culture in the *Annals of Internal Medicine*, reports that instituting a culture of safety can improve clinician error reporting and reduce mortality (Weaver et al. 2013). Proclamations of safety, however, are difficult to unbind from their reliance on the same assumptions of organizational culture seen above. “Successful and sustainable patient safety improvement rests heavily on an organization culture

of patient safety” (Pestotnik 2019). The meanings and very existence of patient safety culture, quality culture, and organizational culture seem to be inextricable.

The Institute for Healthcare Improvement, a largely online healthcare improvement resource center, pushes the requirements of patient safety culture one step further. In their “changes for improvement” section, they outline developing a culture of safety as a top-down project and that senior leaders must drive the change. Further, their report states, “There is no room in a culture of safety for those who uselessly point fingers or say, ‘Safety is not my responsibility, so I’ll file a report and wash my hands of it’” (IHI 2019b). I saw this sentiment echoed almost explicitly in an interview with a Borough administrator, who stressed the importance of staff engagement (which will be explored further in the final section) and reiterated top-down culture change.

Staff engagement is also aligned with quality culture and patient safety culture in the literature. Beyond encouraging healthcare administrators and physician leaders to engage their staff in safety, reporting on quality and safety is considered a significant part of building a quality culture. “Blame free culture,” yet another iteration of culture identified in the literature, tends to refer to an environment where clinicians can report errors, near misses, and other problems without penalty (AHRQ 2019a; AMN n.d.; Elmqvist, Rigaudy, and Vink 2016). In theory, establishing a “blame free” culture relieves healthcare workers from the fear of reporting unsafe conditions for patients and staff to hospital administration. Literature on this version of a culture shift, purports that it will also encourage engagement and buy-in from all levels of hospital staff (Ree and Wiig 2019).

Finally, there is significant pressure for healthcare systems to become quality-focused, from regulatory entities that espouse the extensive benefits of quality culture. The Joint

Commission and The Agency for Healthcare Research and Quality (AHRQ) are two major influencers establishing wide-spread quality culture. These types of governing agencies make similar links between culture and quality seen in the literature and in my fieldwork. In describing safety culture, The Joint Commission states: “[safety culture is] the product of individual and group beliefs, attitudes, perceptions, competencies, and patterns of behavior that determine the organization’s commitment to quality and patient safety” (The Joint Commission 2017).

Alternatively, AHRQ attends to the links between staff engagement and quality culture with their hospital surveys on “patient safety culture” (see appendix C) (AHRQ 2019a). CMS also relies on assumptions that seem to be particularly attentive to culture and quality: “Quality improvement tends to be about learning, culture change, and capacity building. Often the focus is on features that are unique or idiosyncratic to each organization and context. The goal of quality improvement is “to the degree possible to transform such unique and idiosyncratic features through the development of physical, knowledge or human capital or the standardization of process” (CMS 2017b). We see, again here, vague and pliable definitions of quality and culture change that are effective alongside an explicit assertion of standardization.

Healthcare literature highlights hospital and organizational culture as a critical aspect of delivering high-quality care. Quality culture, patient safety culture, and blame-free culture are all built from the construction of organizational culture as neutral. The utility and force of quality culture are strengthened by assumptions of the “right” organizational culture, a top-down approach, and a foundation in patient safety. As was shown in the previous section, administrators align themselves with this approach and capitalize on the inevitability of quality being irrefutable. The evidence confirms that quality culture is based in the literature and supported by standardization and improved outcomes. Healthcare literature on quality therefore

offers authority to the supposition that quality is a fix all, a claim transferred directly back to healthcare systems and their administrators.

“This is Evidence-Based, and You Should Follow It:” Operationalizing Quality Culture

This section examines how quality culture is operationalized in the protocols and systems at Borough Hospital. The prevalence of literature and evidence pointing to quality culture as a fix-all penetrates clinical spaces in many ways. At Borough, quality culture was partly operationalized through the standardization of best practice and reporting. Additionally, increasing emphasis on reporting enabled the continued neutrality of evidence and data. This section shows the conditions of quality and quality culture were often hidden by the ensured success of evidence-based quality projects.

Quality culture was often discussed in interviews and observations. Through both explicit and implicit references, I found the use of quality culture to carry its own set of implications at Borough. Namely, quality culture operated as a neutral agent, guaranteeing improved outcomes. This occurs first, through the authority of “evidence-based” and “best” practices and secondly, through standardized data and reporting. Stemming from literature that promotes patient safety culture and increased standardization as key elements of quality, when participants discussed quality culture it was very much formed by their commitment to evidence as best practice.

Best practice is a central aspect of evidence-based medicine and healthcare broadly. Best practice refers to practices that are prescribed, and accepted, as superiorly effective and efficient. In medicine, it is typically, defined as the “‘best way’ to identify, collect, evaluate, disseminate, and implement information about as well as to monitor the outcomes of health care interventions for patients/population groups” (Perleth, Jakubowski, and Busse 2001). Thus, it is not surprising

that establishing best practice is a significant part of the push to strengthen quality culture in hospitals. Similarly, to the way they discussed the new and old cultures of Borough, my participants often implied best practice would be new to hospital staff. The Director of Operational Efficiency explained it this way, “the experience that a hospital has had for many years and the way they practice things and then sort of like what the evidence might tell you or what best practice might tell you can be different.” (1912) She described something that quite a few administrators pointed to; best practice is evidence-based and existing clinical practices may not be aligned.

In order to ensure high-quality care and a strong quality culture, policies and practices therefore must be evaluated and standardized. A nursing director said,

Like what does the policy say? Show me what your policies, our policy says, well, [lets] look at it together... Also, you know, questioning practice too. And I'm getting more involved in it and I'm asking, you know, is this really best practice? So, we're really working on things like that. I'm bringing evidence-based practice into this hospital because it hasn't really always been emphasized here, I guess. 1916

She expressed that evidence-based practice may sometimes be contradictory to existing practice and nurses should be able to question that practice alongside adherence to the policies. It was unclear in our interview however what she saw as the connections evidence and practice. The path from evidence-based practice, to standardized policy, and ultimately improvement of a quality culture was presented as clear, but explanations of the connections were rote at best.

A crucial part of building quality and improving safety for these administrators is, “agreeing that this is evidence based and that you should follow it and that the way we’ve been doing it for a long time is not necessarily the best way.” (1905) What administration presented as success was always from evidence-based studies that showed improved outcomes. The quality manager for the Department of Nursing was firm in her commitment to establishing quality

culture to ensure safety, best practice, and quality healthcare. In interviews like this one the boundaries between quality, outcomes, and best practice were nebulous. She continued,

Let's start with what quality is, it is achieving the best outcomes. I think that's probably a definition I picked up. My organization says that, but that's what I always...what I mean with new nurses or new managers, I defined it as so we want to make sure that patients [are] coming into the hospital for whatever it is that they're trying to, what they need, whatever the symptom is, and that we're achieving the best care that we can, the best outcomes.

As a leader and teacher in Borough's nursing department it appeared important for her to have explanations for quality as evidence based. Her definition not only aligned with Borough's, but she also affirmed that best outcomes were an essential component of quality and that the road from best care to best outcomes was evident. As with other participants, these types of explanations seemed merely restated from quality culture literature.

Best practice was necessary to ensure successful outcomes and the key to best practice was standardization. The Nursing Practice Council was explicitly tasked with establishing and implementing best practice at Borough. The Practice Council was part of a series of Nursing Council meetings I observed, for which staff nurses were encouraged to participate in along with nursing managers and directors on typically administrative projects. Nurse participants in the meeting explained practice council to me, they reported that they used to read studies, look for evidence, and then review policy and procedures on issues they felt needed attention. Now however, they were mostly focused on reviewing and implementing standardized policies and procedures from City Network. The leader of the council, a nurse director, stated that establishing one standard for City Network patient care was critical (fieldnotes).

Best practice was discussed repeatedly in the Rapid Task Force (RTF) as well. RTF meetings were largely IT focused, problem solving meetings led by the CMIO. The meetings were open to any staff member, clinicians and ancillary, attempting to resolve conflicts between

IT and their provision of care. EHRs were more often than not the culprit. During one meeting when a physician requested a specific new procedure template in the EHR, the CMIO spent a few minutes talking about best practice in terms of customized templates and EHR data.

Afterwards, I asked him to expand on best practice and standardization in our interview.

So, if everyone's templates are different but [even if you] can have maybe the same fields, people [can] interpret it differently... so I think if there's a standard template, everyone understands what's being asked, right? It'll be easier to pull data to benchmark best practice. You can then track the data trend, see how the performance of your, whatever measures you're putting into place...It definitely goes in line with supporting quality.

He explained that RTF meetings he received many requests for EHR customization,¹⁶ which he said was a “relic” of things of pre-merger. However, he stressed the link between standardization, best practice, and quality. He also indicated that standardization ensured understanding, an inevitability that I think many EHR users would refute. Similarly, to the CMIO, others at Borough also discussed the need to standardize care delivery, especially in a hospital that may have historically been flexible or based on clinician preference. This tendency once again, implicated differing cultures and culture changes in explanations of best practice and outcomes.

The structural organization of patient care and quality metrics reporting at Borough emerged as another site for standardization. Standardization was again presented here as a key element of quality culture. While not something new, many of the meetings I observed at Borough were organized around goals for improving care delivery and hospital efficiency and connect this to the use of standard systems. The standardization of quality culture was explicitly

¹⁶ Borough's EHR system had many options for customization and quick edits, something that was very useful when trying to manage an EHR that did not do users wanted. Customization, however, also made the EHR extremely specific to Borough and sometimes difficult to pull reportable data from. City Network had announced they were starting to “crack down” on customizations during my fieldwork.

operationalized in The Medical Board Quality Improvement Committee (MBQIC). MBQIC is a monthly meeting that addresses quality improvement initiatives and clinical division status reports for the hospital. The meeting is led by the Chief Quality Officer (CQO) and leadership from all departments are required to attend. Each month, either the Chairman or Quality Director from every department (e.g. Emergency Medicine, Pharmacy, Radiology, Surgery) is required to submit and present a report on volume, quality indicators, and adverse or significant events. Additionally, the New York State Department of Health's (NYDOH) "Patient Occurrence Reporting and Tracking System" (NYPORTS) are reported in this meeting. NYPORTS is a state level reporting system for adverse events required by every NY State hospital (NYSDOH 2019). Hospitals are required to submit an account of such events to the NYSDOH within 24 hours.

Meetings, like MBQIC, in part move notions of quality culture from the senior level into clinical leadership with top down assertions of quality that serve to increase engagement. The conceptual framing of MBQIC meetings as well as the specific department updates are significant here. MBQIC meetings are considered high level, yet still clinical meetings. This means that the large majority of attendees are clinicians, and primarily physicians. Reports from other departments were extensive and there seemed to rarely be integration of hospital goals or interests. Despite this, in observations, it appeared to be understood that the significance of the meeting was the destination of reports. being given to the Hospital Board and the occasional new quality update or requirement.

Hospital-wide goals and outcomes were explicit talking points in MBQIC meetings. The impetus was on clinical leaders, again in a top-down approach, to ensure their departments were increasingly standardized and efficient. Each month, meeting attendees were reminded and encouraged to make quality their priority, and reporting data in these meetings was part of that.

Routinizing meetings like MBQIC, in part by standardizing reporting processes helped to construct a stronger quality culture at Borough. The Chief Quality Officer (CQO) explained the connections between standardization and quality culture during a meeting. She said, “we want patients to believe we have the supreme ability to treat them and giving the same messages throughout the hospital for quality is part of that.” She framed this construction of quality culture in terms of outcomes and thinking about “total preventable harm.” In observations, the function of MBQIC seemed to be to enforce the role of reporting in improving quality. In this case, improving standardized documentation and standardized care would be the priorities in reaching “zero harm” (Gandhi, Feeley, and Schummers 2020).

I found there to also be important intersections between standardization and engagement in reporting as key element of ensuring quality. A quality department administrator explained one of the quality goals he reported on, “...part of quality is that whoever you turn to, there's always somebody that's going, everyone should be giving you the same answer and it should be coordinated.” He explained that particularly for regulatory evaluations from entities like The Joint Commission, and other reporting requirements, uniformity in both practice and knowledge of the data were crucial. Another clinician-administrator echoed this, “Anyone and everyone should be able to answer any question that the surveyor could ask.” At Borough, staff should be equipped with the information to answer any question related to quality. This edict reflects much of the literature that highlights standardization and reporting in quality culture.

Borough’s version of a “blame-free culture” was “non-punitive culture.” Reinforcing a non-punitive culture was another common talking point at MBQIC meetings. There seemed to be three important elements of the CQO’s non-punitive culture. First, it is evidence-based and therefore best practice; second, standardized data and reporting are a critical element; and third,

staff engagement is leveraged. In an early MBQIC meeting I attended, clinician attendees discussed each of their data registries.¹⁷ The CQO stressed the importance of data and reporting, “to know where to go, need to know where we are.” Here, data seemed to work in the same way evidence worked, with the authority that each medium carried, quality culture’s meaning was further solidified in diffuse and yet assertive ways.

Non-punitive culture was also presented as part of a culture change, or a push towards a new modernized culture, aligning with accounts from administrators in earlier sections. By being completely bound up in evidence, quality improvement, and decreased penalization, it was difficult to see a downside of supporting a non-punitive culture. However, as we have seen in other sections, the complexity and implications of metric reporting and reliance on data seemed to be flattened in the interest of quality improvement. Further still, and as I observed more meetings, I found non-punitive culture to also stand in for explicitly naming corporate changes driven by the merger, namely standardization. The association between quality culture and a non-punitive culture was useful, and perhaps strategic. As a key element of quality, non-punitive culture facilitated increasing standardization and tracking and the fact it was framed as culture, reinforced reporting and tracking as inevitable.

The assertion of a “non-punitive culture” being central to the measurement of care delivery in hospital settings, again shows a reliance on culture to implicate staff while maintaining objectivity and neutrality. In the same way that quality culture is positioned as irrefutable, it is difficult to argue against trying to create a non-punitive culture. We know however that it is not that simple. Just as quality culture has complex implications for clinicians and organizations, directives for safe reporting have significant impact on staff and clinician

¹⁷ Data registries hold extensive records of patient information and are used for research and establishing best practice, especially in surgery

accountability. Relationships between the eighth floor and bedside staff remain dynamic for some and stagnant for others, and staff accountability raises important questions about who a “non-punitive culture” actually works for, for who it does not.

Despite a projected assurance that quality culture led to positive improvements in patient care, there was little nuance or depth to the operationalized projects that established best-practice and that built up quality culture. At Borough, evidence seemed to mirror both the top-down and assertive approach seen in the quality literature. Following best practice, reporting on standardized care, and producing standardized data are all presented as neutral, but the processes and conditions they are built on all appear to be black boxed (Latour 1987). The detail of these quality projects, and most importantly the clinical implications and realities, seem to be lost. As long as standardizing and reporting efforts are best practice, they aid in enacting a universally beneficial quality culture. Assertions of quality culture emerged from my data as a neutral and unbiased force, a force that constructed and was constructed by assumptions of culture and inevitability. But *quality culture* is not completely un-peopled nor apolitical or benign, as I will show in next section.

Tracking Engagement: Visibility Boards and Accountability

In order to ensure staff engagement in quality culture, healthcare organizations now spend increasing time and resources to make their data accessible to hospital staff.¹⁸ Making patient care data readily available and reportable is considered a key step in establishing quality culture (Field, Fong, and Shade 2018; Gleeson et al. 2016). Organizations, like Borough, tout

¹⁸ There are also efforts, to a certain degree, to engage the public in data sharing, e.g. Hospital Compare, HCAHPS, NYS Health Profiles (DOH).

their goals of extending the reach of both patient and logistic data from “the eighth floor” down. These efforts follow the logics of a non-punitive culture and the wider evidence-based reporting on quality culture (Flemons et al. 2011; Pestotnik 2019; Weaver et al. 2013), but at Borough, the distribution of this kind of data also expanded expectations for staff engagement with quality metrics and other reporting systems. Further, through devices like dashboards, visibility boards, and patient safety culture surveys, the boundaries between engagement and surveillance are increasingly blurred.

When I interviewed the Chief Nursing Officer (CNO), he was eager to discuss nursing engagement in our interview. He made it clear that he felt nursing engagement was a central part of quality healthcare. While discussing his leadership team’s current efforts for increasing staff nurses’ involvement and motivation in quality improvement, he was quick to mention his new “visibility boards” that he said would be installed on every medical and surgical unit in the coming months. He explained:

We're very data rich or data engaged organization... we'll get reports for January [in] the next few weeks that'll just keep adding. So, we'll have boards that show what our actual scores are, what are, what we think our actual scores are going to be.

Visibility boards are analog or digital boards in public places that display patient and organizational data, as well as metrics scores, but are particularly for hospital staff to see. The idea is that increasing visibility and awareness of patient care data will improve staff engagement, especially for nurses (Barve and Kruer 2018; Field et al. 2018; Frankel, Federico, and Lenoci-Edwards 2017). Nursing engagement¹⁹ has long been prioritized in hospitals and other clinical settings. It is claimed to not only improve retention but to also enhance patient experiences and clinical outcomes (Dempsey and Assi 2018; Fasoli 2010).

¹⁹ Staff engagement more generally is also encouraged.

Borough's CNO showed me a prototype of his visibility board; at the time of our interview visibility boards were still in their early days of implementation and were being rolled out on specific units first in white board and bulletin board form. Some were still as rudimentary as cork boards, and primarily presented monthly information on the unit's infection rates, falls, and staff hand hygiene. The surgical recovery unit on the fourth floor of Borough was one of the first units to have a visibility board (see appendix D). Next to their visibility board with unit-specific data were pinned print outs of the 2019 Quality and Patient Safety Goals (from City Network) and the National Patient Safety Goals from the Joint Commission. The CNO also said that he wanted to make sure patient satisfaction scores (HCAHPS) were posted somewhere visible as well.

Patient data and metrics on clinical performance and outcomes are highlighted on visibility boards in order to make the information accessible to frontline nursing staff. But it was more than just being accessible, there was an element of disciplining as well. The boards show the unit's hospital-acquired infections rates or patient falls for the month, both data points that would be embarrassing if rates were high. There appeared to be two significant consequences: first, floor nurses were expected to be increasingly responsible for knowing the big picture as it related to quality data and improvement; and second, nurses became directly implicated in the consequences of their errors. Bringing these rates to the floor tie nurses and other personnel directly to these quality metrics. Nurse managers and nursing leadership are tasked with educating staff nurses about these boards, explaining not only the data but their responsibility for the information on the boards.

Both in my interview with Borough's CNO and in nursing leadership meetings, visibility boards were presented as central components of improving quality care and patient safety. As

discussed previously, current literature for healthcare administrators emphasizes staff engagement as a crucial link between care and quality (Ree and Wiig 2019). Nursing management at Borough followed this logic and emphasized the improvement that visibility boards would create. “If the units address and lower their incidents, then we’ll beat our own scores, and meet quality goals... I call this individualizing the metrics [to specific cases, occurrences, incidents] for learning and unit by unit improvement.” The CNO explained his approach, based in the evidence, to engaging his nursing staff in quality improvement. His goal was to individualize occurrences in order to “drill down” an opportunity for improvement.

Nurse managers also discussed similar efforts in leadership meetings. Including floor nurses in both the reporting and the presentation of localized care data, it was thought, would increase their investment in improving care. In turn, nurse managers purported that staff engagement was a key element of improving both their clinical outcomes and patient HCAHP surveys. Visibility boards were poised to create a visible connection between their work, the care they provide, and metrics that mattered to administration. A nurse manager discussed visibility boards for her unit,

I want to get those [visibility boards] in all of our areas because then you can also post and refer to them. And that kind of brings people in more... it's really like engagement, getting that information out [to] everyone.

Staff engagement, in this case through visibility boards, was an important component of establishing a culture of patient safety and thereby quality culture. I also witnessed this approach in nursing leadership meetings, nursing councils, and task forces; including nurses in outcomes reports and metrics tracking was encouraged.

What is notable about the implementation of visibility boards was not the shift in reporting or tracking, patient safety and improved outcomes—which are consistently a central

preoccupation for nursing administration—but instead where accountability was expected to be. When my participants discussed visibility boards, there appeared to be an increasing expectation for staff nurses to also take responsibility for these types of outcomes. Previously, if a unit had high ulcer rates, a nurse manager may have been penalized and it would be their responsibility make changes or reeducate staff. A nursing director explained how she approached quality and other practice requirements on her unit,

I do think that everyone [nursing staff] should understand the regulatory requirements...there's always a quality aspect to it, right. And outcomes, I think. I don't think we do a good enough job talking about that or at least helping them, helping to connect the dots.

Part of improving quality to her was ensuring that any nurse would be able to understand and explain the links between the hospital's regulatory requirements and what is happening on the unit. Visibility boards could display the data necessary for nurses to make individual-level connections, all as part of improving the quality culture. Thus, despite the narrative that reporting was intended to be non-punitive, as I described above, patient falls, and hospital-acquired infections were characterized as stemming from the actions of unit staff. At Borough, it seemed visibility boards were not implemented to connect patient safety to systemic or organizational problems, and thus could completely side-step any structural or hospital-wide system factors related to infections or falls.

Shifting accountability was done more explicitly as well. For instance, in January of 2019, one of the visibility boards was updated with the results of the previous year's "Patient Safety Culture Survey." The system-wide survey was conducted by City Network as part of consolidation and compared the scores of campuses on questions such as "staff feels as though mistakes are held against them" and "when errors happen in this unit, we discuss ways to prevent them from happening again." This board also had the survey results for the specific unit,

presumably so staff nurses on that floor would see their own responses (see appendix D).

Displaying survey results aligned with what Mannion and Davies (2018) explain as an optimistic view of culture. This view sees culture as “an attribute that can be assessed and manipulated to improve care” (3). Quality culture literature accordingly supports surveys like this, purporting that asking staff questions about their experiences with patient safety would improve engagement. However, once displayed on the visibility board, I found it to also (re)frame their engagement in terms of non-punitive culture and tracked (and visible) data. Though the survey results were anonymous, its presence on the visibility board seemed to indicate importance in its visibility. Regardless of the effectiveness of the survey in improving quality, the overt visibility of this kind of data seemed to further implicate staff in quality culture.

Increasing the visibility of staff engagement, and therefore accountability, in many ways extends the saturation of tracking and surveillance. Whereas metric and patient safety reporting necessitated more explicit tracking, in this case, surveillance functioned subtly as it increasingly molded expectations for staff engagement. One nurse manager even said, “there's nothing hidden anymore. There's no breaking the rules or bending the rules. We always know what everybody's doing. It's like big brother's watching.” Big brother was disciplining and could enforce quality culture with the assumed neutrality of staff engagement (Foucault 1978; Martin et al. 2013; Turner 1997).

Staff's engagement and their commitment to quality was used strategically in reifying the “right” culture. However, the simplicity in messaging about the benefits of staff engagement seemed to mask the increasing role of accountability (Espeland and Sauder 2016). This mirrors the supposed banality of quality culture discussed in the first section. Further, the boundaries between engagement and surveillance are increasingly tenuous (Martin et al. 2013). My data

showed that a focus on accountability and engagement in clinical spaces functioned in two ways; first, by strengthening a form of passive surveillance, or disciplining, through accountability and second, by moving explanations of quality care away from the bedside and instead towards what could be represented and explained on the visibility board. To ensure staff were part of quality culture, a certain level of surveillance and tracking was critical, which was seemingly neutralized by optimistic accounts of culture (Mannion and Davies 2018). Thus, I found *quality culture* to be neither un-peopled nor benign but rather conditioned by the disciplining of data engagement, surveillance, and reporting.

At Borough, *quality culture* was codified on visibility boards, and as we will see in the next chapter, quality care is increasingly being demonstrated through measurement and reporting. Systems and processes of best practice establish quality projects that often distance the physical bedside care requirements of clinicians. Simultaneously, culture changes are emphasized as critical to improving patient safety and quality as workflow or practice changes. With the authority of evidence-based and best practices and standardized data and reporting, *quality culture* can operate as a neutral agent, guaranteeing improved outcomes. As an actor, quality culture acts as a surrogate for both quality problems and quality goals interchangeably. Thus continuing to construct the “black box” that is quality (Latour 1987).

At Borough, the meanings of quality were shaped by assumed but shared understandings of a “right” culture and by the operationalization of quality away from the bedside. Increasingly, quality is operationalized through the advancement of measurement and surveillance. This sometimes explicitly takes clinicians away from direct patient care but more importantly seems to highlight non-bedside activities in quality improvement and success. This chapter elucidates how, through these processes, *quality culture* in fact acts by prioritizing specific notions of

quality. I contend that at Borough, *quality culture* functioned as its own agent in hospital organization and management.

Conclusion

This chapter introduced organizational and structural elements of Borough Hospital's approach to quality. By engaging with notions of "culture," I attempted to elucidate the function of *quality culture* in Borough's management, and ultimately in efforts of quality measurement. I first traced how administrators and clinicians employed "culture" in their descriptions of Borough and quality at Borough. The broad range of meanings of organizational culture, allowed for it to be used extensively while still carrying assumptions of neutrality (Jacobs et al. 2013; Mannion and Davies 2018; May and Finch 2009). In that context, I show how terminology such as, the eighth floor and coffee patrol served in part as metaphors that first, reiterate the physical distance, and second create symbolic distance between clinical care and administration. Further, we saw how administration's commitment to quality in meetings and initiatives (coffee patrol) is exerted throughout the hospital as abstracted patrolling, or disciplining (Foucault 1978; Martin et al. 2013; Turner 1997). Quality culture is therefore partly enacted by this type of terminology; terminology that is localized, colloquial, and helps to establish a collective understanding or tacit knowledge²⁰ (Collins 2010; Kothari et al. 2011). Moreover, the general neutrality and inevitability of organizational culture undergirds the framework from which quality can be prioritized.

²⁰ Integrating quality and quality culture as part of an organizations "tacit knowledge," is also influenced by corporate quality initiatives in airline travel. This marks another alignment of quality measurement dominated by corporate models of management. See for example: (Chassin and Loeb 2011).

I argue that conceptions of culture are neither neutral nor simple but in fact recreate hierarchies and assumptions of successful, performance, efficiency, and quality of care. Establishing culture as a key element of quality measurement in healthcare settings, while it is simultaneously leveraged an obscuring rhetorical tool, is neither benign nor inevitable, instead it detaches specificity and labor from quality goals and measurement. Mannion and Davies (2018) purport that culture often is a proxy for, or refers to, “patterns of care, safety, and risk.” I argue that measurement, standardizing, and engagement must be added to this assessment. The infrastructure of quality culture appears to be increasingly constructed and operationalized by projects that have little direct connection to patient care and instead validate the measurement and reporting of those projects (e.g. non-punitive reporting culture and quality goals on a visibility board). As a business, metric, and data-driven model, visibility fit the mold for measurable and reportable projects. Visibility boards have close analogs in retail settings, in food service, and in the trend towards accountability and quantification broadly (Espeland and Sauder 2016; Eubanks 2017; Zuboff 2019). Additionally, quality and quality culture are legitimated as a fix-all by healthcare literature that prescribes evidence-based and best practices in care delivery. I argue that quality culture is constructed with a reliance on measurement, standardizing, and reporting, and importantly on quality information being shared in a specific top-down trajectory. The top-down dispersal of both data and policies, which has been obscured by quality culture as a universal good, in many helps to enact quality culture as its own actor.

My fieldwork showed that the connections between quality culture and improved patient care felt obvious to Borough administrators; as long as quality culture was promoted and implied, in most if not all, management discussions, due diligence was assumed. This also reveals how quality culture is continually normalized (May and Finch 2009). The inevitability

and presumed benefit of *quality culture* also emphasize its reliance on potentiality. “Anticipation is the palpable sense that things could be (all) right if we leverage new spaces of opportunity, reconfiguring ‘the possible.’”(Adams et al. 2009:247). Adams, Murphy, and Clarke (2009) offer anticipatory practice as a way to consider why and how the shortcomings in today’s technologies, or in this case measurement systems, may be eclipsed by their successes tomorrow. Further, as the intersections between care delivery and measurement proliferate, both the future, and the anticipation of desired futures, are constructed as inevitable. I consider *quality culture* an example of this. *Quality culture* as an actor in hospital management leverages neutrality and inevitability and emphasizes quality via quality measurement. Chapter Three will consider quality measurement as it is enacted on the clinic floor.

CHAPTER THREE: FAILING THE METRIC BUT SAVING LIVES: THE PROTOCOLIZATION OF SEPSIS TREATMENT THROUGH QUALITY MEASUREMENT²¹

Introduction

Healthcare quality metrics are crucial in the constructions of *quality culture* we saw in Chapter Two. As such, metrics have become a central component in health policy of ensuring improved outcomes and care equity more broadly. Over the last decade, as electronic health records (EHR) and widespread implementation of information technology (IT) have transformed efficiency, error reduction, and transparency for healthcare in the United States, regulatory agencies and hospital systems are finding new ways to measure and quantify healthcare delivery (Burwell 2015; Ginsburg and Patel 2017; Song et al. 2011). As discussed in the introduction, quality measurement ties regulatory oversight to healthcare management while tracking and evaluating care delivery processes, outcomes, patient experience, and payment structures. Increasingly, notions of quality are used to ensure healthcare achievement and accountability by emphasizing measurement, evaluation, and quantification. Metrics for sepsis are one example of a highly clinical and complex diagnosis and treatment processes being protocolized for quality measurement. This chapter takes a closer look.

Sepsis is a critical condition stemming from severe infection and often resulting in multiple organ failure. Sepsis has multiple indications, including high systolic blood pressure, increased respiratory rate, and altered mental status and exclusive identification can be complex. Tracking and measuring the treatment of septic patients specifically, gained clinical traction in 2001 after a breakthrough New England Journal of Medicine study by Rivers et al., which initiated a major shift in emergency and critical care management of sepsis and suspected septic

²¹ A version of this chapter was published in Social Science & Medicine in May 2020 (Winslow 2020).

patients (Rivers et al. 2001). This study revealed crucial indications for early goal-directed therapies, such as fluids and vasopressors, in decreasing mortality. Despite that attention, the condition continues to have a relatively high mortality rate and has remained of clinical and regulatory interest to healthcare providers and policymakers alike.

In this chapter, sepsis care in emergency medicine is used as a case study to help consider healthcare quality metrics more broadly. Due to its clinical complexity and pervasiveness, sepsis treatment remains extremely difficult in emergency and critical care settings. For these reasons, quality experts and clinicians expect the metric to remain active. Sepsis presents an extreme example of a quality metric that allows us to see the tensions and challenges of quality measurement in sharp relief. While it may not be representative of all metrics and processes, both its prevalence and severity and its intensive regulation make sepsis a compelling site for investigation.

In this chapter, I build from my examination of *quality culture* in chapter two and focus on how quality measurement is enacted on the clinic floor. Engaging with theories of quantification, I explicate processes of care generated by quality measurement in sepsis care and interpret the implications for the delivery of quality care. To do this, I examined the treatment of sepsis and the corresponding sepsis metrics in the in the Emergency Department (ED) of Borough Hospital. I trace how quality metrics like the one for sepsis reconfigure clinical care and orient it towards the potentiality of measurement, and further, how compliance with metrics has come to indicate quality in care delivery. As part of a broader turn to measurement that is redefining healthcare accountability, I examine how metrification and protocolization clash with clinical care delivery. I show how this protocolization inevitably prioritizes compliance and

reporting, and thereby distances direct patient care from the meanings and expectations of quality healthcare.

Prioritizing Quality Metrics in the US Healthcare System

As healthcare systems are increasingly costly and unsustainable, from both an economic and public health perspective, quality metrics have become the dominant means to demonstrate improved health outcomes and report tangible healthcare successes (Miller 2009; Peterson, Bernstein, and Spahlinger 2016). New models of care, namely alternative payment and value-based models, focus attention on specific dimensions of quality healthcare. These models claim to improve healthcare management in the US and prioritize efficiency, quality, and improved outcomes as key aspects of effective health systems (Ginsburg and Patel 2017; Song et al. 2019). Processes of measurement, referred to commonly as metrics, are increasingly equated with quality and have proliferated quickly in the healthcare sector. As metrics have been taken up, in healthcare organizations to report effectiveness care and outcomes success, they reveal a fundamental link between quality, data, and success.

In clinical settings quality metrics and EHR data are ubiquitous and increasingly shape definitions of quality care. The Centers for Medicare and Medicaid Services (CMS), a centralized reporting structure in the US, outlines their metric goals as, “effective, safe, efficient, patient-centered, equitable, and timely care” (CMS 2019b). However, CMS is just one entity establishing and regulating its own metrics. Metrics proliferate from state and local health authorities, professional societies, and local hospital systems. For instance, the DOH, Joint Commission, National Quality Forum, National Database for Nursing Quality Indicators, as well as local, hospital-specific all release their own unique metrics for sepsis. CMS is responsible for

a national metric for sepsis treatment, while US states have regional or hospital-based metrics. CMS alone mandates 43 metrics, including hospital acquired infections, outcome measures, and payment claims (CMS 2019b). Many quality metrics are met exclusively using data captured in EHRs with both direct and indirect input from clinicians. In emergency medicine, for example, sepsis measures require intensive documentation, care plan oversight, and workflow adjustments for both nurses and physicians (CMS 2019b).

Over the past 10 years, hospital consolidation in the US healthcare system has introduced corporate models for evaluation and standardization in healthcare. Increasing consolidation and corporatization is an important influence in the turn towards quality and measurement. In 2017, 115 mergers and acquisitions were reported and the Catholic Health Initiatives – Dignity Health merger established a health system of 139 hospitals across 28 states (KaufmanHall 2018). In the greater New York City area specifically, four systems have established themselves as the primary sites of healthcare delivery. In addition to the city’s public hospital system, NYC Health and Hospitals, these multi-hospital systems, sometimes referred to as the “big four,” have grown significantly in the past five years, through extensive acquisitions and mergers (Uttley et al. 2018). According to a 2018 report from the New York State Health Foundation and MergerWatch, 41 hospitals have closed in the last 20 years, hospital beds continue to be decertified, and the “big four” hospital systems hold a “combined total of \$14.2 billion in net assets, giving them significant economic power and ability to shape the health system” (Uttley et al. 2018).

The purported benefits of consolidation and centralization include increased quality control across systems, better patient outcomes, and cost-effectiveness. Consolidation links corporate business models—including metrics—with quality improvement (Birkmeyer 2016;

Gaynor, Mostashari, and Ginsburg 2017; Joosten, Bongers, and Janssen 2009). The alignment of corporate business models and quality measurement inundate hospitals, like Borough Hospital, with metrics that aim to establish accountability norms and standardize practice. In the case of mergers, measuring quality with metrics is used as a tool to create uniformity in previously disparate medical centers. A growing number of healthcare systems are therefore now simultaneously navigating metrics for institutional standardization and government regulations, shaping significant implications for hospital policy and direct patient care (Hung et al. 2018; McKinlay and Stoeckle 1988; Numerato, Salvatore, and Fattore 2012). The inundation of metrics is further complicated by the intrinsic complexity of measuring the wide-ranging dimensions of quality healthcare delivery. Metrics are therefore consistently modified, intensifying the impact for clinicians on the floor.

Managing Sepsis Through Quality Metrics

Due to a nationally stagnant sepsis mortality rate, regulatory interest in the quality measurement of sepsis treatment has increased in recent years. Agencies including CMS and the DOH prioritized sepsis treatment as a clinical area to implement measurement and metrics in order to facilitate quality improvement. As mentioned above, there is currently a national metric for sepsis treatment (CMS) and US states have varying regional or hospital-based sepsis-related metrics. The primary federal quality metric for sepsis was established in 2015 by CMS and the Joint Commission. This metric tied sepsis treatment to overall hospital reimbursement from CMS and implicated hospital administration more explicitly than before (CMS 2018; Faust and Weingart 2017). Hospitals are now financially rewarded and penalized based on compliance with these metrics. Additionally, CMS's public reporting tool for hospital performance based on

quality measures, *Hospital Compare*, increased transparency in outcomes, and competition locally between hospital systems motivates increasing attention and investment in meeting quality goals like decreased sepsis mortality. Many hospital administrators found themselves newly accountable, on a national and public stage, for clinical care processes that may previously have been only internally measured.

Importantly, these sepsis metrics evaluate the overall treatment of a septic patients, codifying specific care processes into measurable components that become a “score.” The score is centrally concerned with the processes, not necessarily the outcome. While there is extensive clinical research on sepsis and sepsis treatment, research examining sepsis quality measurement and regulations is somewhat limited. Clinician-researchers and policymakers have only just been able to examine the outcomes and consequences of CMS’s SEP-1 metric, and with only a few years of data consensus on the metrics reporting, their efficacy is challenging (Barbash et al. 2017; Venkatesh et al. 2018). Researchers have however, shown significant benefits to adherence with aspects of sepsis metrics most notably linking early time to treatment with decreased mortality (Liu et al. 2017; Maughan et al. 2019; Seymour et al. 2017). Others however, reveal convoluted policies, overextended resources, and confusion over the clinical protocols for regulated sepsis treatments and policies (Aaronson et al. 2017; Walkey and Lindenauer 2017). There is also evidence of increased and undue antibiotic administration for potential septic patients (Pulia, Redwood, and Sharp 2017) and difficulty in compliance for safety-net hospitals (Barbash and Kahn 2019), exposing the unintended consequences that often follow new health policy.

Thus, neither the clinical treatment for septic patients nor the metric treatment protocols have found strong consensus in medical communities. (Barbash et al. 2017; Kalantari, Mallemat,

and Weingart 2017; Perkins and Winters 2017; Venkatesh et al. 2018). What has been shown however, is that early identification of septic patients is highly effective in decreasing mortality, which policymakers have relied on as the underpinning of sepsis metrics (CMS 2018; Faust and Weingart 2017). Measuring and regulating sepsis treatment is expected to remain important for emergency and critical care (Faust and Weingart 2017; Mattu 2017). As clinical practice is increasingly standardized and evaluated based on demonstrating quality, quality metrics – across a large spectrum of conditions and care processes – will continue to play a significant role in healthcare delivery.

Quantification of Healthcare Quality

Following the trajectory of sectors like education and criminal justice, healthcare has drawn on interventions from data-based accountability to consolidate and standardize its management (AHRQ 2019b). In healthcare, the process of care delivery has been quantified with quality and quality improvement goals in mind. As discussed in Chapter One, quality of care has long been a concern in healthcare (Ayanian & Markel, 2016; Donabedian, 1965; Starr, 1982), but its explicit use in processes of quantification and measurement has significantly expanded into the clinic (Casalino et al. 2016; El-Jardali and Fadlallah 2017). Further, health technology and big data have been crucial to moving quality measurement and metrics to the bedside. New technologies, such as EHRs, amass vast archives of patient and process data primed for mechanization and manipulation, and increasingly carry authority as a source of unbiased knowledge (Introna 2016; Latour 1987; Rottenburg et al. 2015; Shore and Wright 2015).

Yet, competing perspectives raise the possibility that these benefits may not be realized or may be accompanied by significant downsides. Scholars have specifically questioned the

neutrality of quantification and pushed back on the idea that measuring something ensures objectivity or even potential success (Espeland and Sauder 2016; Espeland and Vannebo 2007; Eubanks 2017). It has been shown that relying on technical advancements, quantification, and data often obscures existing disparities and structural inequalities, while also generating significant unintended consequences (Bell and Figert 2015; Clarke et al. 2010; Eubanks 2017).

The increasing capabilities of data and monitoring have created what has been coined the “metrification of society”(Cooley and Snyder 2015; Greenfield 2017; Muller 2018). Society’s fixation on evaluation and performance overstates both the utility and benefit of quantification, creating an obsession with metrics. This metrification is seen in healthcare quality and quality measurement. In this case, metrics and measurement processes related to sepsis are specific to a US context. However, neoliberal quality imperatives transcend just the US and can be seen increasing in prevalence in the National Health Service (NHS) in the UK and other healthcare systems globally (Grosios, Gahan, and Burbidge 2010; Saver et al. 2015). Now that EHR-derived data and metrics are readily available to hospital administration and clinicians, the ways in which those data are mechanized raise additional questions about the role of technological advancement in structuring healthcare delivery and prompts us to ask questions about the utility of quality metrics in healthcare delivery. This chapter considers the consequences of these “data-driven” approaches for both healthcare providers and the patients they serve.

The Metrification of Sepsis in Emergency Medicine

The emergency department at Borough Hospital presented a particularly compelling and complex site for examining the effects of sepsis metrics on workflow and care delivery. At Borough, emergency medicine clinicians became champions for sepsis initiatives for two major

reasons. First, there is significant commitment to quality, hospital flow, and research in the Borough ED and physicians take up numerous administrative roles within the department. Second, two-thirds of septic patients first present in the emergency department, which not only solidifies ED physicians' expertise in sepsis treatment but also holds the entire department accountable for most outcomes related to sepsis (Perman, Goyal, and Gaieski 2012). Treating sepsis in the ED is a clinical imperative and an administrative concern for ED management. In early 2016, Borough Hospital created a task force to address all the 2015 CMS core measures. An internist involved in quality assurance, explained that clinicians and administrators agreed SEP-1 was so complex it would need its own meeting.

It grew out of a committee that was looking at all of the CMS measures and when we're looking at CMS measures, sepsis needed, it was so big that it was taking up all of the time. We needed to split it off. So, sepsis became its own meeting.

His explanation echoes accounts from research at other hospitals, which confirm unprecedented complexity contributing to SEP-1's difficulty (Barbash, Davis, and Kahn 2019). The Sepsis Committee, led by the ED, was established to review sepsis protocols and establish methods to better meet the metric.

While the complexity of the CMS sepsis metric was enough to garner its own CMS sepsis committee, it was not the only measurement of sepsis-related care delivery in the ED. The NY State Department of Health (NYSDOH) had established metric for sepsis in 2014 as well. The ED quality director reported there were efforts to capture and report some sepsis treatment data for the NYSDOH metric, but that the CMS metric was definitely prioritized in the committee and hospital wide. "I think for us the structure [of Borough] lends itself to more attention to CMS...there are more people working on it but that [was] someone's decision." She implied that even though it was well known there were two metrics for sepsis, at some point

administration had made a choice to only support the resources for CMS. Based on other observations in Borough's senior leadership meetings, it appeared that CMS carried more authority in a regulatory context, suggesting the importance of metric compliance over a local clinical context.

In 2015, Borough Hospital underwent a merger with a multi-hospital, regional healthcare system and became one campus within a larger network of hospitals. Borough has been addressing multiple and ongoing efforts to unify and standardize care delivery and policy across the network since the merger. In 2018, 35 Quality and Patient Safety (QPS) Goals were established for the entire organization in accordance with many other similar quality assurance programs in the country. The QPS goals dictate improving quality for outcomes already regulated by organizations like CMS, such as lowering hospital-acquired infection rates, decreasing mortality, and reducing readmissions, as well as protocolizing highly clinical processes. The list, which is updated each year, follows the logic that measuring care, regulating compliance, and promoting competition are processes that can improve care and workflow and created yet another set of metrics for Borough to manage. Sepsis was the focus of a 2019 goal. The goal stated that network hospitals' compliance rates for sepsis treatment should be "greater than the New York State average" (measured by NYSDOH).

At the February 2019 Sepsis Committee Meeting, the ED quality director expressed her frustration about the new QPS goal. Her frustration was not regarding the need for efforts to improve sepsis mortality rates, but rather the *type* of compliance that was required. The network leadership aligned the new sepsis QPS goal with the NYSDOH metric for sepsis treatment. Borough and the sepsis committee, with directives from senior leadership, had been actively committing resources to the CMS measure and not the DOH metric. In light of the new QPS

goals clinicians and clinician-administrators on the sepsis committee felt as though they had been concentrating on the wrong metric. Further, it became clear that local hospital contexts had not been considered in the selection and expectations of these new system-wide standardizing metric goals.

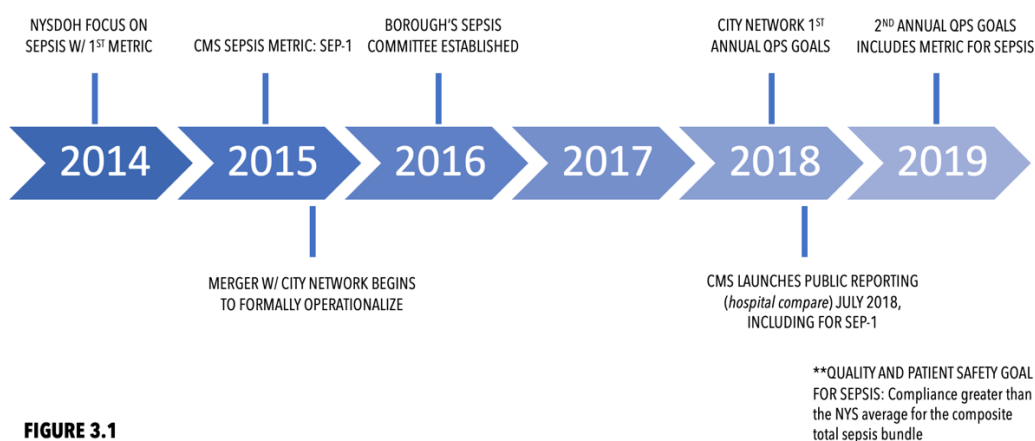


FIGURE 3.1

So why did it matter that Borough ED had focused on one metric instead of the other, especially when both metrics were concerned with improving the quality of sepsis care? Although the treatment and patient care required to meet the CMS and NYSDOH, and now QPS, sepsis metrics are similar, the *reporting* requirements are very different. Because Borough decided to prioritize CMS, there were not enough staff to comply with the abstracting and reporting requirements for both the NYSDOH and CMS sepsis metrics. It was understandable then, that the ED quality director was frustrated when the sepsis QPS metric was released, “they’ve made this goal but aren’t giving us what we need to meet it.”

A large part of meeting and complying with federal and state metrics is determined by institutional delineation of efforts, no matter how significant the implications are (Barbash et al. 2017; Barbash and Kahn 2019; Venkatesh et al. 2018). This was certainly the case for federal-

versus state-level reporting and compliance at Borough. By the end of 2018 the Sepsis Committee had significantly improved compliance with CMS SEP-1 and had decreased sepsis mortality. Borough Hospital was at 60% compliance with the CMS sepsis metric in 2018. Their score was twelve points higher than state and nine points higher than national average, though still lower than the CMS benchmark, which was 75%.

Even though the Sepsis Committee had been successfully improving sepsis care in emergency and critical care settings, providers and administrators reported that the only thing that mattered to the network was being able to report NYSDOH compliance. In another sepsis meeting where members were discussing not doing well on sepsis metrics, a physician joked that Borough was doing poorly, “with the exception of mortality.” The sentiment seemed to be shared among others in the room, who laughed and nodded, and agreed that there was a tangible disconnect between their delivery of clinical care and the ratings and scores representing their care to the public. Borough Hospital was saving lives and decreasing sepsis-related mortality but failing multiple sepsis metrics signifying high quality care. Rather than capitalizing on Borough’s clinical success in improving sepsis treatment, reporting for a specific metric remained the most important representation of improvement. This aligns with a preoccupation with metrics and measurement seen in other disciplines (Greenfield 2017; Muller 2018).

The addition of the QPS goal to the emergency department’s management of sepsis care, and the expectations that it carried, is an example of the opaqueness that can follow quality measurement. Though the metric was indeed established in alignment with recognized quality efforts around sepsis care, it also reveals tangible inconsistencies in the explicit and implicit goals of measuring quality sepsis treatment. If compliance is based on abstracting and reporting of the actual clinical care, ostensibly success for the QPS goal and the DOH metric is not

dependent on direct patient care in the ED. As one nurse manager put it in a meeting, "...it's not about the clinical management of sepsis, it's about fully reporting the "cookbook" steps of the goal" (fieldnotes). Reporting and compliance seemingly outweigh clinical realities and obstacles, while documentation and workflow are increasingly torqued by the protocolization of care delivery. Both the tensions between federal and local metrics and between care and metric "scores" reveal significant metrification of sepsis treatment. Echoing the work of Espeland (2007), Eubanks (2017), and Muller (2018), emphasis is ostensibly put on the system of metrics and protocols than on the clinical outcome, ultimately constraining clinicians' approach and interactions with metrics for conditions like sepsis.

Enacting Quality Metrics on the Floor

Even without competing metrics for the same diagnosis, attending to metrics is not always simple. Metric protocols and their requirements necessitate continual modifications to system capabilities and, in turn, continual responses from workflow. Nuanced workflow processes, both with EHRs and between staff, are extremely important for a well-functioning ED and require significant commitment to organization and routine. A nursing director noted the significance of constraints to emergent and lifesaving care in an understaffed ED. Further, despite the care they provide, nurses often face difficulty in documenting tasks and follow-up treatment. This was true for sepsis care as well:

We fail at the secondary part, repeating the lactate and repeating the vital signs. And documenting... our nurses will put the patient on the monitor, go out of the room, get stuck with doing something else and then come back. The other piece is the documentation...is that it's such a small window of time that we have the vital signs. So it's one hour from the completion of the fluids. You have one hour and if you're a minute before or you're a minute after you fail the metric. So they never get that next set of vitals, they miss the second set and never get it right... that's the issue.

As the nursing director explained, when timing requirements are evaluated down to the minute it becomes difficult to provide care and document your provision of care in the EHR.

There are two factors distinctive to emergency medicine workflow that make a timed documentation requirement particularly difficult. First, there is what clinicians called the “ED time warp.” As the nursing director mentioned, nurses are constantly getting “stuck with doing something else” as they manage upwards of ten patients during a shift. Second, and more broadly, the level of documenting follow-up care associated with sepsis treatment is not inherent to the culture of emergency medicine. The goal of emergency providers is to stabilize their patients and transfer them to the departments that will handle specialized care. A mandate that requires clinicians to timestamp and document secondary tasks, just to ensure metric compliance, historically is not typical for ED workflow (fieldnotes).

In order to try and adapt workflow and address sepsis metrics Borough implemented “Powerplans,” within their EHR system. Powerplans are a customizable feature of the EHR system used at Borough Hospital that enable clinicians to centralize and standardize treatments. A powerplan is a group of care, medication, or documentation orders organized to facilitate a specific procedure or care delivery process. A sepsis powerplan was one of the sepsis committee’s first attempts at improving sepsis care and meeting the CMS sepsis metric. The sepsis powerplan is currently (there have been multiple iterations) a preset group of specific medication and RN task orders necessary to the management of a suspected septic patient. Orders and reminders are timed in relation to vitals times, medication doses, and lab results. These powerplans offer a coordinated, and inevitably, standardized approach to treating sepsis based on both policy requirements and clinical expertise. They also produce the documentation necessary for meeting and reporting on regulatory sepsis metrics for CMS, NYDOH, and QPS.

The boundaries between the clinical and regulatory import of powerplans are nebulous. Clinically, a powerplan can offer an electronic reminder of the protocol and clinical steps required for sepsis treatment because a significant component of proper care is repeated vitals and follow-up. Nursing and physician task alerts and similar reminders are important clinically because research shows early identification and treatment is key to decreased sepsis mortality.

This is why power plan is so important because the triggers are built in to remind nursing of procedures... this just means opening up and selecting the power plan, doesn't mean you [physicians] *must* do antibiotics or order the cultures but was it *does* mean is that RNs get the triggers - the triggers for nursing to follow sepsis protocol are linked to the power plan (emphasis added).

EHR triggers and reminders like these have been shown to be effective way of ensuring correct patient management (cite). There is little disagreement that mandated EHR forms, and targeted surveillance, can improve compliance with clinically necessary steps. However, this participant also explained that there still could be room for a physician to take different clinical action if needed, revealing some discrepancies between the powerplan requirements and clinical care.

Measuring care and meeting metrics require extensive documentation that can be reported to regulatory entities, and powerplans help generate this documentation and data. In this case, reporting compliance with sepsis metrics is only possible through pulling data from medical charts, often called "abstracting." In order to more seamlessly abstract charts, and eventually pull data automatically, the documentation must be uniform. A nursing educator noted that in the past, treatment procedures related to sepsis varied significantly based on physician practice, which made it very difficult to track both sepsis treatment and outcomes.

We were really terrible at the first part and that was because all of our doctors were ordering different thing...they were all ordering different things at different times. Sometimes they would order one culture, some [would] order two cultures, sometimes they order no cultures. They would give antibiotics...there was no standardized protocol. So when we decided to standardize we made a sepsis powerplan that they should be following.

The powerplan not only provides reminders and alerts for physicians and nurses to make approved clinical decisions, it perhaps most importantly, mandates the required documentation for reporting on metrics. The documentation must be reportable when administrators and “data abstractors” later surveil these medical charts to make their report on sepsis metric compliance.

Using the powerplan is therefore continually emphasized in physician staff meetings and resident education. ED physicians are told to prioritize the powerplan, even above diagnosis and treatment uncertainty. An ED attending physician told his residents,

‘Not sure equals sepsis.’ Unless you know it is flu in a young person for sure, we are in the sensitivity business and need to deal with a certain amount of false positives, its ok to overuse the powerplan.²²

The powerplan was stressed as the key to correct documentation and thereby improved compliance with the metric. At Borough, documentation was emphasized over clinical utility as a central part of the powerplan. While the powerplan indeed served a clinical purpose, the dominance of concerns over reporting reveals the nebulous boundaries between clinical and regulatory priorities.

Powerplans can also promote stricter standardization for medication with complicated indications, such as antibiotics. The metrics for sepsis require reporting on the type and timing of antibiotics. The CMS metric, for example, includes a limited list of antibiotics that comply with the metrics timing requirements.

The last piece was the antibiotics. Some of our docs were ordering Levaquin some were ordering Vanco [Vancomycin], some were ordering Zosyn. So it was kind of all over the place, but there are certain medications, like for example Vancomycin has to be given at least over an hour at minimum, but usually more like an hour and a half to avoid one of the side effects.... And so with that you could possibly not meet the metric if, let's say you were 20 minutes late and doing the labs then 20 minutes delayed in

²² This is highly relevant especially now due to COVID-19. As will be further discussed in the conclusion, similarities in the early clinical presentations COVID-19 and sepsis raise questions about the influence of protocols in emergency medicine care delivery.

getting the fluids and then another 20 minutes delayed and now the Vanco doesn't finish for like another hour and a half. You're already out of that three-hour window.

CMS's list of accepted antibiotics must be administered within the time outlined by the metric and the powerplan is there to guide physicians' antibiotic choices. The long-standing clinical difficulty in appropriately managing antibiotics is further complicated by the push to standardize, document, and report. In this case, standardization is enforced by the powerplan and its adherence to the metric instead of by local expertise or experience of physicians.²³ The flexibility that was seen when physicians could exploit powerplan triggers and reminders is impinged by these additional protocol requirements.

While tools like powerplans may offer new shortcuts, reminders, and decision-support, there continue to be adjustments and added tasks that make workflow more difficult for frontline care workers. As one physician explained, he now has to think about a new consequence of his care, "Now I'll get dinged if I don't do it. So, I mean we've adjusted and adapted. But again, the problem with a lot of these extra safety mechanisms is that they do kind of a cost." He explains how he could be "dinged" on a documentation or powerplan error later. This, and similar reports from other clinicians, indicate a changed level of surveillance in their documentation.

Additionally, with increasing documentation requirements, clinicians can face conflicting priorities between their care delivery and the requirements of EHR charting. At Borough, the orders and reminders in the sepsis powerplan were formatted to be aligned with the documentation required for reporting metric performance. Often these requirements necessitated quick adaptation from clinicians and interfered or interrupted existing workflow.

²³ Physician expertise will be taken up further in the following chapter.

Prioritizing documentation that ensures compliance often makes less sense for workflow, clinical expertise, and the local dynamics of an emergency department. It can become difficult for clinicians to appropriately treat their patients while also using the powerplan system correctly. At Borough Hospital, the sepsis powerplan highlights the formalization of metric protocols into documentation systems. The emphasis on standardized documentation that aligns with regulatory metrics places increasing importance on the protocolization of care processes so that care may be surveilled, measured, and reported on. This entanglement further obscures how metrics facilitate quality patient care.

Competing Priorities: Navigating Care and Reporting

Clinicians' priorities and areas of focus often differ from those of both administrators and clinician-administrators. While clinician-administrators may actively take on regulatory and policy related responsibilities, clinicians, especially in emergency medicine, historically have been able to focus on patients and their shifts and steer clear of administrative work. Yet, increasingly at Borough, clinicians reported being subject to more policies and new protocols that require significant effort and workflow changes. With this abundance of quality measurement, any given clinician might interact with close to ten metrics over the course of one shift. Clinicians, who formerly enjoyed autonomy and discretion in providing patient care, conveyed discomfort and frustration with the ways they perceived metrics changed their workflow.

Clinicians shared their reactions to their responsibilities for metrics generally, "...you know, some of the metrics... you kind of have to navigate that differently" and,

I didn't expect it definitely to this point... I did expect, you know, stresses of like seeing a lot of patients sort of like difficult diagnoses or... you know, difficult cases but not to the point of like administrative or a metric stuff. I didn't expect that.

Many of these changes in roles and workflow are the consequence of attempts to measure care delivery and meet regulatory metrics. EM clinicians reported feeling a real change in the accountability expected of them for new metrics even though they are particularly equipped to quickly adapt to change. Their workflows were disrupted, and they faced increased accountability in processes of metric compliance.

Metrics and the expectations of compliance had become so ubiquitous during clinical shifts that teaching to the metric and workarounds often feel like the only effective responses to debated metrics. As one nurse practitioner explained,

I think there needs to be more of a comfort with teaching to the numbers and teaching to the test.... There's nothing wrong with that. And I think that there's a big discomfort level cause it seems like it's cheating and it's not. So kind of like knowing what the parameters are and working to meet [them] pretty explicitly.

Acknowledging that there were now unavoidable metric parameters in emergency care, this clinician-administrator explained that “teaching to the test” had to be accepted. This revealed a tendency to move expectations of compliance with “quality” away from clinical work, thus abstracting metric protocols away from the bedside.

Other clinicians talked more explicitly about adapting their practice to specific regulatory expectations. One physician explained that she orders blood cultures on every patient of hers that comes through the emergency room because the sepsis metric requires that immediate cultures are documented. This was a work-around practice that she reflected on, explaining:

That is why I order blood cultures on everyone that comes in [to the ED], it's the one thing you can't do later for sepsis. I guess, yes, it is gaming the system a little... but it's the only way we can [comply with metric].

This physician discussed ordering blood tests ahead of a confirmed sepsis diagnosis to ensure she doesn't fail the metric later if the patient becomes septic in the future.

Clinicians felt inundated with pressure and performance evaluations that tracked their compliance with the sepsis metric. Multiple physicians reported considering the metric requirements in their clinical decision making, revealing an increased element of surveillance in their work. "Teaching to the test" and "gaming the system" in order to time the blood cultures correctly allowed physicians to superficially worry less about meeting the metric in the moment. Yet, clinical choices and workarounds like these are in fact fundamentally shaped by the future measurement of their care because the documentation of their care would be abstracted and reported to determine if the metric was "successfully" met.

My participants expressed exasperation with undesirable workarounds that they developed for the time being because in their experience, "the metric will be gone in a year". Similarly, to clinician workarounds, many in the ED assumed metrics were temporary and arbitrary. In 2019, the previous year's ED metric "door-to-doc" was replaced with a "time-to-admit" metric. This meant that dwell time, or time between patient arrival and the decision to admit to the hospital, now mattered more (to CMS) than how quickly an ED physician could see a waiting patient, which had been measured in 2018. An EM physician reflected,

I don't necessarily feel like some of our quality metrics are necessarily always for the patients right thing versus like meeting government initiatives and you can even ask [Borough's ED quality director] and she's like, oh yeah, like there was this quality metric that they had us do that they just gave up on and we don't have to do any more. I'm like, so does it not matter?

These frequent changes to quality metrics and protocols confirm clinicians' speculation that metrics are arbitrary, temporary, and therefore require less clinical devotion.

A pediatric EM physician summed it up this way, “Metrics sometimes feel like people are just giving us things to do because they want to give us things to do... that they want to measure stuff. Maybe there might not be a whole lot of science behind it.” I found clinicians, like this pediatrician, to sometimes distance themselves from metric goals. Another EM physician echoed this skepticism:

I do understand why like they have to put something out so that they can measure it. But time and time again, they've [research] shown that these don't necessarily equate to actual better things for patients. They used to be very strict about like antibiotics for pneumonia and then they gave up on it. They were like crazy about that. And then they just dropped it.

Though measurement may be accepted as central to many of these goals, clinicians repeatedly defined metric compliance as distinct to their clinical practice, patient care, or scientific expertise. There appeared to be a wanted distinction between a regulatory issue or rule and just taking care of patients. This distinction again highlighted an opaqueness in how metrics and in turn quality measurement could really capture patient care.

Despite clinicians’ skepticism of metrics, they remain pervasive in clinical settings. As the US healthcare context continues to consolidate and find ways to better monetize care delivery, we are seeing a future where metrics will become more relied upon, not less. Clinicians will continue to be required to jump quickly between metrics in order to prove their measurable success. Notions of quality and measurement serve as the backdrop to clinical practice, just adding just another layer of structural constraints. However, in many ways quality measurement plays a more active role. Rather than a one-dimensional constraint, quality measurement shapes and reshapes the way clinicians treat patients and dictates new care processes that aim to improve outcomes (Bell and Figert 2015; Clarke et al. 2010; Latour 1987).

Examining ED workflow and the impacts sepsis metrics have initiated, reveals the complex efforts that quality measurement and protocolization require. Clinicians are held accountable for new aspects of their workflow and metric compliance underpins clinical protocols. Care delivery, especially when implicated in quality measurement must be documented, surveilled, and protocolized to ensure quality and metric compliance and distance patient care and clinician workflow.

Conclusion

Mortality rates related to sepsis have decreased in New York and at Borough Hospital since treating sepsis was highlighted and regulated by organizations like CMS and the DOH. Though the specific care steps and overall reliability of the CMS and NYSDOH sepsis metrics may be debated, clinicians at Borough stated that the increased attention to sepsis has been beneficial to patients overall, “You can't deny it. I don't think that it's an actual antibiotic change or fluid amount, you're just paying more attention to them. You're seeing them faster.” However nonetheless, the consequences of these metrics are material and lasting. Frontline clinicians find their clinical choices shaped by surveillance and the future measurement of their care and outcomes. At Borough Hospital metric compliance increasingly outweighs clinical barriers to care delivery and standardized protocols continually reconfigure workflow for all levels of staff. The metrification of sepsis treatment, system responses to complying with metrics, and clinicians’ accounts of protocol adherence all point to a distinct enactment of quality and quality measurement.

Metric compliance has been shown to shape new processes for the workflow of both workers and technologies. Powerplans can dictate clinical decisions and nurses are constrained

by to-the-minute documentation of treatments. Sepsis related care delivery processes are therefore distanced from the bedside by increasing documentation and reporting requirements in order to meet metric guidelines. Documentation is surveilled and abstracted in order to be measured because it has been operationalized as clinical protocols. These surveilled protocols appear to have increasingly less to do with the actions of direct patient care while at the same time attempting to measure that very care. This is highlighted in the case of sepsis and its metrification. Teaching to the test and gaming the system become normalized and clinicians feel they are held accountable for quantifying their care beyond their clinical responsibilities. Increased protocolization of healthcare delivery shapes workarounds and care processes focused on the metric over the mortality rate, turning the concept of quality into a measure defined by protocolization. These conditions certainly are parallel with accounts of quantification and metrification in other fields (Bell and Figert 2015; Eubanks 2017; Greenfield 2017). However, in the case of sepsis, complex healthcare processes are measured and quantified with systems that seem to change regularly. In the emergency department of Borough Hospital, metrics for sepsis treatment illuminate both the distinctiveness of protocolization in the healthcare context and the implications of relying on quantification in attempts to measure quality patient care.

The metrification of sepsis treatment in the ED, is an example of a care delivery process at the center of a shifting healthcare landscape, and represents the convergence of data-reliance, quantification, and the reorganization of clinical workflows. Emphasis is placed on standardization, reporting, and compliance as indicators of quality care. Meanwhile, patient care and treatment processes are increasingly measured with and reliant on abstracted data from EHRs. Successful compliance with metrics, sepsis in this case, has come to signal quality in care delivery and workflow and in this case, quality does not align with mortality rates as much as it

relies on being measured. The case of sepsis treatment at Borough Hospital reveals the ways quality in healthcare has become protocolized. The imperative for measurement and quantification in clinical spaces relies on abstracted protocols that prioritize standardized compliance and distance direct patient care. This will be further explored in Chapter Four.

CHAPTER FOUR: “FLOW IS OUR QUALITY:” DEMONSTRATING CLINICAL SUCCESS WITH DATA AND EFFICIENCY

Introduction

This chapter examines the enactment of quality and quality metrics at Borough Hospital. Following assessments of quality culture and specific quality metrics in Chapters Two and Three, this chapter again highlights the intersections of quality, protocolization, and standardization. Tracking utilization and volume is a significant part of hospital management. Being able to both evaluate and predict hospital visits or stays dictates staffing, resource allocation, financial planning, and quality assurance (Elixhauser, Steiner, and Fraser 2003; Jack and Powers 2009). A central method in tracking patients is measuring hospital throughput. Throughput, a term used in many other industries, generally refers to the movement of, in this case patients, through a system. Healthcare literature defines it as the flow of patients throughout the hospital (Cawley and Hanlon 2005; IHI 2019a). Borough, like most hospitals, monitored their throughput and integrated it into an overall commitment to “quality culture.”

At Borough, patient throughput was referred to as flow and was regularly referenced as one of administrators’ key priorities. Tracking patient movement, or flow, is another condition of the (re)organization care delivery at Borough Hospital. In healthcare settings there are typically two types of flow: patient flow and hospital flow. Though they are often used interchangeably they can also carry different implications. Patient flow is ostensibly concerned primarily with improving the experiences of patients by avoiding delays, overcrowding, and confusion about care planning (Hall 2013), while hospital flow takes an organizational perspective. Hospital flow still centers patient care but locates it within the optimization of quality systems (Cawley and Hanlon 2005; Fleischman et al. 2015; Hall 2013). At Borough, I observed flow being used both

ways. However, as will be shown in this chapter, flow operated beyond its typical framings and codified more than simply the movement of patients throughout the hospital. I contend that flow, as a quality process, blurs the boundaries of clinical success and efficiency and prioritizes data-driven decision-making, thus narrowing the scope of clinician authority.

In the chapters prior, I argued that quality acts as its own agent in clinical settings and amplifies the imperative for the metrification and protocolization of highly complex clinical processes. This chapter furthers those arguments by considering the ways “flow” complicates physician expertise through clinician (re)organization and reliance on data. Following the movement of Borough’s patients and staff, on both a micro and macro level, exposes sites where quality goals and priorities rely on emerging components of protocolized care delivery and increasingly obscure direct patient care in definitions of quality. I show how the metrification of clinical treatments and healthcare processes has also penetrated large-scale hospital throughput systems. To do this, I again engage theories of quantification, and layer interpretations of clinical authority to problematize the way data is being mechanized by the optimization of flow.

Theoretical Framing

I engage with two broad theoretical approaches in this chapter. Building from Chapter Three, I continue to use theories of quantification to consider the work quality metrics and measurement do in clinical spaces. I also incorporate theories of physician authority and literature on deskilling to help frame new questions about clinician expertise and physician roles. Critical perspectives on quantification and accountability show us that despite a rush to solve problems with quantified processes, quantification and a reliance on measurement does not guarantee advantage and improvement (Espeland and Sauder 2016; Espeland and Vannebo

2007). Scholars instead reveal that quantification often obscures potential inequities through a “trust in numbers” (Porter 1995). Further, these theoretical perspectives also challenge notions of neutrality in measurement systems (Espeland and Sauder 2016; Eubanks 2017; Muller 2018), and propose that increasing reliance on standardization fundamentally transforms healthcare interactions (Timmermans and Berg 2003; Timmermans and Epstein 2010).

I extend analyses of healthcare interactions and clinician roles by additionally engaging with classical theory on the medical profession and physician authority (Freidson 1988; Starr 1982). Taken together, these perspectives provide a framework for considering the changing landscape of the healthcare workforce and clinician expertise. Sociologists of medical education have shown the implications of the impending shortage of physicians in the US. They have discussed the impact of technology, professional certifications, and decreasing numbers of US medical schools all as factors in changing physician authority. (Ishak et al. 2013; Jenkins 2018, 2020; Knopes 2020b; McKinlay and Marceau 2008). In her research on medical education, Knopes (2020b) suggests the growing amount of information and medical knowledge made available to medical students has shaped changing interpretations of what is “sufficient knowledge.” The rapid increase of HIT in clinical work has changed the nature of clinical work, with many reports of exhaustion and burnout (Adler-Milstein et al. 2020; Gardner et al. 2019). However, with EHRs and other technologies unlikely to go anywhere, we must answer serious questions about medical expertise in care delivery (Caldwell 2015; Leslie et al. 2017; Marc Overhage and McCallie 2020). Similarly, other researchers have questioned the “deskilling” of physicians. Increased technical innovation and systems of outcome evaluation have changed both the roles and responsibilities of clinicians in modern healthcare settings (Hoff 2011; Lu and Shaw 2016). While evidence of deskilling is limited, there is increasing evidence of changing

roles and responsibilities as health IT and quantification continues to proliferate in healthcare systems (Challen 2019; Zibrowski et al. 2018).

Flow: Quantifying Patient Movement

While the last chapter focused primarily on a specific clinical quality metric in the emergency department at Borough Hospital, metrification and protocolization increasingly shape care delivery at every level of the hospital. Hospitals are often siloed, with clinical departments establishing their own rules and norms. However as was shown in Chapter Two, assertions of “quality culture” can standardize and inevitably flatten many of those nuances. The flow of the hospital is considered a crucial part of both ensuring high quality care and a high performing hospital (Bhattacharjee and Ray 2014; Litvak 2018; Nowak et al. 2012). As mentioned, flow typically refers to the movement of patients throughout a healthcare organization. However, flow also includes the medical care as well as the material resources and organizational processes necessary in moving a patient from their admission to their discharge from the hospital (Litvak 2018). At Borough Hospital, many participants described flow as a significant aspect of quality. This section examines how emergency medicine clinicians and clinician-administrators managed metrics for ED flow and how, despite their benefits, flow metrics complicated clinician roles.

As discussed in Chapter Three, quality metrics evaluate many different areas of clinical care and hospital management. While the metric for sepsis treatment was focused on one clinical condition, other metrics cover much broader processes. During 2018 and 2019, clinical leadership for the Borough emergency department were concerned with two CMS metrics, ED-1 and ED-2. These throughput, or flow, metrics were both measurements of patient time spent in the emergency department, which grew from a wider city-level focus on ED patient wait times

(CMS 2019a, 2019b; Morton, Schriger, and Barrett 2012). In 2018, ED-1 measured the time from patient arrival to physician exam, colloquially called “door-to-doc.” In 2019, CMS changed its focus and began to measure “time-to-admit:” “median time from emergency department arrival to time of departure from the emergency room for patients admitted to the facility from the emergency department” (CMS 2019a). This change was discussed in the context of everchanging metrics and clinician frustration in the last chapter. These types of metrics required extensive clinical, administrative, and IT reorganization in order to properly meet and report on them, and the frequent changes often caused resentment and disregard from clinicians (fieldnotes; Chapter 3). However, these metrics also had implications for the way patient movement was prioritized in the emergency department.

Emergency departments in the US face increasing demand while resources dwindle and wait times continue to be notoriously long (Jarvis 2016; LaCalle and Rabin 2010; Morley et al. 2018). In New York especially, addressing overcrowding EDs and long wait times has been a health policy focus for some time (Chartier et al. 2016; Mchugh and Dyke 2011; Trzeciak and Rivers 2003). At the time of my fieldwork, complementing ED-1, the metric ED-2 measured the median time from a physician’s decision to admit a patient to the time of the patient’s actual departure from ED. Both of these throughput measures quantify patient movement in and out of the ED and are thought to be key aspects of managing flow. Metrics like ED-1 and ED-2 are part of a quality-focused shift in ED oversight and management. The idea is that by binding reimbursements and public reporting to flow metrics, emergency medicine administrators are compelled to reassess the ways they value patient flow and the patient care processes that effect it. In my observations and interviews, flow was purported as a key part of ensuring high quality care in the Borough ED.

ED clinicians with administrative duties, reported that the focus on flow was useful, especially because they received more resources from the hospital to address the many systemic reasons patients may wait for care. An ED attending, who was also the director of research, said, “when they [administration] started caring about ED throughput we got patient reps down here. They realized that it was transportations fault, or delay, not ours.” Other clinicians-administrators also expressed feeling that they now had more support to escalate radiology or transportation delays or to ask for more patient resources in the ED. In interviews and observations throughout the hospital, I heard other participants share similar, yet still cautious, reactions about the practical utility of flow.

However, clinicians also explained some contradictions in counting flow as a central component of quality. Their accounts, especially in the ED, revealed some complexity—such as misaligned time stamps and misdirected blame—in the association between flow and quality. The director of ultrasound for the ED noted that the throughput times measured for ED flow metrics sometimes have more to do with patient registration duties rather than clinical care and quality. For instance, she told me if registration wasn’t completed correctly for a patient it could affect the reporting of highly consequential timestamps for flow metrics. This was especially problematic because as eQMs (electronic clinical quality measures) proliferated, the data necessary to report on ED-1 and 2 were supposed to be pulled automatically from the EHR. Meanwhile, she noted, ancillary support, including registrars, in the ED were continually being cut in the name of streamlining resources and human labor at City Network.²⁴ Clinicians generally reported however that these sorts of misalignments in the priorities of metrics were typical, as we also saw in Chapter Three.

²⁴ See, for example: (Sadurni and McKinley 2020)

To address challenges and more effectively report on ED flow, new IT system solutions were created at Borough. Despite the fact that participants reported that many of the challenges were related to personnel and resource provision, ED clinician-administrators and IT specialists looked to their EHR systems to find shortcuts. As we saw in the case of sepsis treatment in Chapter Three, technical solutions were not only prioritized, but were sometimes more practically realistic than attempting clinical care or workflow changes. That is, they were preferred often to avoid increased or redirected clinician labor. In this case, ED leadership manipulated the EHR to find ways to rectify what “arrival time” in the chart actually captured, and to create new electronic forms to collect data explicitly for the throughput metrics. During fieldwork I observed many of these types of solutions. One proposed shortcut included clinicians auditing or manually correcting registration details, exemplifying the high labor cost of some changes. A second solution instead relied on the EHR. While observing Rapid Task Force meetings (RTF), I closely followed the trajectory of an ED-based IT request making its way to the hospital-wide IT meeting. ED staff had requested a new customization in the EHR that required approval through RTF. In the RTF meeting on this occasion, the CMIO and IT staff discussed the options for creating an entirely new “click box” in the EHR that would enable documentation of a more compliant and time-stamped patient arrival time. While customizations were increasingly discouraged due to City Network standardizations,²⁵ in this case, the metrics seemed to take priority and the EHR changes were approved. This revealed the value Borough placed on improvements to reporting or compliance for projects labelled as quality based.

A patient care workaround was also developed to address the “door-to-doc” metric for ED flow. “Brief initials” were established to stop the clock on the metric. This ensured that there

²⁵ As mentioned in Chapter Two, EHR customizations are often contrary to standardization goals and therefore discouraged by City Network

was an earlier timestamp in the EHR for the initial physician exam, which would be more easily pulled for reporting later. In an ED staff meeting, the chairman of the department explained quite literally that “we just have to stop the clock, so we don’t get dinged later.” The “brief initial” exam was established for future measurement, in order to meet the reporting requirements for a metric. Implementing these purposeful exams also required repeated discussions in staff meetings about which provider should complete them. Was it a matter of shift time, of provider efficiency, or rather of physical layout? I found these types of questions to subtly merge with the expectations of flow; performance, physical layout, and staffing were all integrated for the greater good of improving flow.

The practices and processes created to comply with flow metrics also emerged as complicated for clinicians, who viewed them as contradictory to patient care and workflow. An ED physician explained to me what happened when he was on the shift that had to complete “brief initials:”

Honestly, patient care gets sacrificed when I'm a flow person. I try to be both kind of people [flow and quality]. On Mondays [I do brief initials], so that's more of a flow issue with seeing the max number of patients. It's not that I can't give good care, I will be there for the patients. But when it comes to moving the patients through [the ED], you'll see me busting beds, washing off beds, you'll see me do things that I don't need to do. So, I sacrifice...for the sake of a flow. Good flow with a balance of good quality care as far as being able to talk to the patient and be personable.

This physician expressed some tension between his role as a “flow person” and the patient care or quality he could provide, again underscoring the complex relationship between flow and quality care. He stated he made sacrifices, and recounted feeling like it was difficult to manage flow and provide good quality care. For him and others in the ED, it seemed flow was not inherently equivalent to quality, instead their perspectives of flow were closer to what it meant in

terms of the metrics. This misalignment between flow and quality of care seemingly put metrics and patient care at odds despite policy and administrative assertions that they were inextricable.

Although ED-2 was a metric specific to emergency medicine, it offers insights on flow throughout the hospital more broadly. It also revealed other tensions for clinicians and their provision of care. In general terms, ED-2 measured “dwell time.” Dwell time is the time that elapses from when an ED physician or advanced practice practitioner (PA, NP) decides a patient should be admitted to the hospital²⁶ and when the patient is picked up by transport for transfer to an inpatient unit. At least at Borough, clinicians reported that ED-2 had much more to do with the inpatient units and how the larger hospital was managing its patient census than the ED. A resident physician in the ED characterized it this way, “We board patients for like twelve, fifteen hours, and should [that] be dwell time?” Boarding was when patients stayed in the ED after being admitted to an inpatient unit because there were no clean beds available. This came up often in both ED staff meetings and resident conferences. There was frustration when ED leadership and staff saw their throughput or flow reports and felt like low scores for ED-2 had very little to do with the quality of care they were delivering.

Divergent understandings of patient and hospital flow emerged from clinicians and administrators. This is not surprising, as administrators often have broader organizational perspectives or larger scale goals, than clinicians on the floor. The Director of Operational Efficiency was quick to explain her job in terms of patient movement and hospital flow.

I would say 40 percent, maybe 40 to 50 percent of my job is really flow of how do we get the patient from point a to point b...So it really, even though I don't like to say my whole job was flow, it seems like everything kind of goes back there. It's [flow] quality on so many levels.

²⁶ This is documented by an EHR order for admission.

By the time our interview ended, it felt more like seventy-five percent of her job was at least associated with flow. Her office was on the eighth floor and despite its location, her job appeared to be the most connected to patient care and the clinical floors.¹ Based on our interview and my observations, I assessed how her training as a nurse and her commitment to patient flow, allowed her to present herself closer to the bedside. It was clear that to her, hospital flow had tangible implications for care delivery.

This director, along with other participants from nursing and medicine explained many positive aspects of an increasing focus on the flow of the entire house, including shorter wait times, better use of resources, and happier patients. The VP of ancillary services put it this way:

If I'm looking at something like reducing the number of unnecessary inpatient radiology procedures that could be its efficiency, it's money, it's better use of time, better all of that. But it also is flow because if we get those patients out earlier in the day and they're not waiting for a test, we can get our patients from the ED to beds and HCAHPS²⁷ go up.

Explaining the scope of flow throughout the hospital, the VP shared the widespread benefits of reducing radiology procedures while simultaneously claiming the intersections of efficiency, patient satisfaction, cost, and flow. As mentioned, flow was often framed in terms of its far reach, however these sorts of statements increasingly marked a disconnect between the organizational and frontline accounts of flow. Indeed, efforts to reduce unnecessary inpatient radiology procedures or discharge a patient with more communication with their families had benefits for clinicians. These efforts also meeting regulatory oversight from the joint commission for example (Litvak 2018; The Joint Commission 2018). However, other than its metrification, the role of flow in improving the quality of direct patient care was anything but simple, according to clinicians.

²⁷ HCAHPS are the patient experience survey a healthcare organization sends to patients after a hospital visit. HCAHPS stands for Hospital Consumer Assessment of Healthcare Providers and Systems.

Hospital flow emerged as a crucial aspect of my study of quality at Borough. The attention given to flow and patient movement had many benefits to both clinicians and patients, as well as to the management of the hospital more generally. Overall, focusing on how to best move patients in and out of the ED or hospital as quickly as possibly made sense to clinicians and administrators. However, the quantification of that movement was what appeared to increase the complexity of flow while simultaneously simplifying it. As I have shown in previous chapters, metrification necessitates the protocolization of complex healthcare processes. The workarounds and sacrifices that clinicians reported struggling with when working to optimize flow, show how elements of quality can have unforeseen implications. While the goals are almost always aligned – deliver high-quality, safe, and appropriate patient care – flow, as a key element of quality, and patient care appeared at odds. At Borough, prioritizing the standardized measurement of flow did more work than simply optimizing patient movement. This is evident as we consider the role of standardization in patient tracking and automated data systems.

Standardizing Decision-Making with Automated Patient Tracking

Throughput and flow of the entire hospital were valued by Borough's administration because flow is purported be a key element of effective healthcare; improving patient experience, staff workload, and safety (Cawley and Hanlon 2005). Borough's administrators and clinician-administrators continued to make many associations between quality and flow during our interviews. Building from, what I argue in Chapter Two, is the enactment of quality as an actor, administrators explained managing hospital flow as a central part of their goals for improving Borough's status as a high-quality organization. For the hospital generally, flow referred to the movement of a patient throughout the hospital, from arrival in the ED to discharge and actual

physical departure from the hospital. Importantly, this movement could be evaluated, measured, and quantified as throughput data and used to improve care. Hospital-wide flow was also assessed via national and state quality metrics and accreditation surveys by entities like The Joint Commission. In fact, in 2017 a special high-level administrative position was created in order to more successfully manage flow at Borough Hospital.

Hospital-wide, there were additional quality measures related to hospital flow, including those for patient readmissions and length of stay. CMS manages a set of outcome measures related to complications and unplanned readmissions of hospital patients. The most highly tracked and analyzed metrics are typically for heart failure, heart attack, pneumonia, and knee replacement patients who return to the hospital within 30 days of their original hospital stay (CMS 2017a; Medicare.gov 2019). Hospitals face a range of consequences based on their readmission rates, including financial loss and public reporting.²⁸ When I spoke to my participants about hospital flow, they tended to list reducing readmissions as a key benefit of improving hospital flow.

[With flow] we're now providing quality. The nurses there are the ones that are trained to take care of you, you're in the right place, you have the right equipment. So, all of those issues or readmissions, we can avoid them. When you really look at it everything kind of touches flow.

This nurse manager described the intersections of flow, quality, and readmissions in her assessment of improved flow on her unit. Here, the interests of patients and metrics appeared to be much more aligned than in what clinicians reported in the ED. For Borough staff, the benefits of reducing readmissions by improving patient outcomes with optimized hospital flow were obvious or inevitable (Collins 2010; Jamshidi et al. 2018). However, it is important to also note

²⁸ As described in Chapter Three, compliance with readmission metrics, like for sepsis, was determined based on hospitals' performances and scored based on national averages. Hospital readmission data was also publicly reported on Medicare's *Hospital Compare* website.

that the motivation for explicitly linking readmissions and flow was additionally influenced by quality metrics. Tracking information that is “necessary” for preventing readmissions reifies the significance of standardized and automated data for predicting measurable patient futures. I found that the future measurement of care delivery and patient outcomes remained a key motivator for optimizing hospital flow.

Length of stay metrics were also highly relevant for both assessing and improving hospital flow at Borough. In almost all cases extended patient stays are associated with infection and even mortality (Lingsma et al. 2018). Accordingly, CMS evaluated hospitals’ length of stay data and published it publicly on the *Hospital Compare* website. Borough initiated interdisciplinary rounds in 2017 in an attempt to better address length of stay. Interdisciplinary rounds were, in essence, a more formal institutionalization of the medical rounds that normally took place on clinical units. Physicians and nurses typically did patient rounds independently, but Borough established interdisciplinary rounds so that they could be streamlined and optimized, with input from all disciplines. Staff from the medical team (residents and specialists), nursing, case management, physical therapy, food and nutrition, and social work were all included in rounds and presented reports for each patient on the unit.

As I observed interdisciplinary rounds on a medical unit on the sixth floor, I was struck by how often the discussions revolved around patient discharges. Resident physicians summarized the patients’ cases and prognoses, nurses gave updates on medications, treatments, and social factors, and case managers usually ended each case by asking about discharge. At Borough, Case Management is responsible for most discharge placements, particularly when they are complicated, or when patients need to go to another facility. During these sixth-floor rounds, I noted that the case managers were discharge-planning for every patient on the floor.

Based on directives from administration to prioritize discharges and decrease length of stays, the case managers made note of every discharge plan, or lack thereof, and informed residents and nurses of their discharge-related responsibilities.

The focus on discharge was apparently not atypical, in fact the Director of Operational Efficiency commented on this in a later interview:

It's funny because the doctors like to call it “discharge rounds” because discharge is a focus. But it's not, if one of the doctors is complaining that somebody talked about something like constipation [during rounds], it's still part of the care. It's going to delay the patient's plan of care and discharge is a very important part of that [plan of care].

She confirmed that while she didn't think it was the primary goal of interdisciplinary rounds, there was still a perception that discharge planning was prioritized. She continued to explain that in her perspective, discharge needed to be a bigger component in a patients' plan of care. I found this type of (re)organization of rounds and discharge planning to indicate a shift in the parameters of clinician decision-making. Nurses, case managers, and physicians were taking on new roles and responsibilities when it came to discharge decisions.

Though sometimes subtle, these shifts in authority and decision-making emerged in other contexts. Specific documentation that supported flow metrics was also emphasized in interdisciplinary rounds. While discussing a congestive heart failure (CHF) patient on the floor, for instance, a case manager explained the financial consequences of a prolonged length of stay. She told the medicine resident, “you *must* document what is going on if we're not discharging... other tests, diagnoses... [the hospital is] only reimbursed for three-day hospital stay.” According to her knowledge of the CMS reimbursement policy, she explained that the hospital only gets reimbursed for a certain amount of days based on a CHF diagnosis code.²⁹ What was alarming to

²⁹ This was part of the CMS 2-midnight observation vs inpatient stay rule. See: (Khalid and Deswal 2018; Locke et al. 2015)

me as an observer – after all, what did reimbursement have to do with the plan of care? – was normalized in the context of “discharge” (interdisciplinary) rounds. I found this to indicate a blurring of the lines between medical and financial consequences of metrification. It is widely accepted that discharge planning should be part of an interdisciplinary plan of care,³⁰ however it becomes increasingly difficult to detach the reimbursement element of discharges when the urgency is set by money. Moreover, in my analysis this pointed to a shift in the way decisions were made about discharge versus plan of care; though a clinician would still dictate decisions, we begin to see a narrowing in the conditions of decision-making.

For administrators however, who asserted the beneficial connections between quality and improved flow, metrics that reflected poor flow (high readmissions, long length of stays) needed to be addressed urgently with strategies like interdisciplinary rounds and purposeful documentation. Further, clinicians’ perceptions of “discharge rounds” and patient care sacrifices seemed irrelevant to the administrative imperative for improved quality via optimized flow. At Borough, the best way to optimize flow was through the prioritization of the trusted data and metrics that evaluated hospital flow. At the same time some providers reported they felt that the policy interest in flow brought needed attention and resources to Borough’s systemic problems, it nonetheless also narrowed sites for clinician decision-making, as data-driven decision-making and authority was emphasized. Both could be true, that was the advantage of *quality culture*.

Another result of increased attention on hospital flow was the establishment of a new administrative department at Borough that would exclusively manage flow. This department integrated and centralized patient and hospital data, while also shifting patient movement

³⁰ See, for example: (Henke et al. 2017; New, McDougall, and Scroggie 2016; Patel et al. 2019)

decisions away from physicians and clinical units. The Patient Tracking Department (PTD)³¹ fulfilled directives from both City Network and Borough Hospital that stressed the need for improved efficiency, patient experience, and hospital flow. Based partly on a model from City Network, the PTD was designed to support a hospital-wide teletracking system, and most importantly, it was best practice. “The PTD came out of needing a bed management software and then because we know what was best practices, TeleTracking is the company that we used.” The Director of Operational Efficiency explained their choice of tracking platforms. TeleTracking is an electronic software that tracks all patient movement and related operations, such as transportation, environmental services (cleaning services), and admission or discharge orders (see appendix E). The automated tracking platform was built to be a resource for increasing overcrowding and inefficiencies, and generally improve patient throughput in hospital systems (Healthcare IT News 2012; TeleTracking 2020).

The central components of PTD included the teletracking system, nurse coordinators for patient placement, transportation and environmental services, and patient representatives. And although staff were hired to fill positions within the PTD, the department is largely reliant on automated technology. The system at Borough was described by a PTD coordinator as a “centralized tracking system [that] automates patient data.” Additionally, it has become one of the first platforms with true data integration at Borough, combining operational tracking data with patient health data. The PTD at Borough was an example of the merging of metrification, standardization, and flow in service of quality; “getting the correct patient to the correct bed at the correct time. That is our quality.”

³¹ Pseudonym

I found some descriptions of workflow processes to be at least partly shaped the teletracking system and PTD in two ways. First, PTD enabled increased reliance and trust in tracking systems and automated data when considering both patient and hospital flow. A PTD nurse coordinator explained TeleTracking to me:

Everything is statistically driven. We can look up, if anybody puts something in the system, it's already in there flawlessly. Look, we can look in there and see exactly what happened down to the minute that goes from when the bed was assigned, when the patient went up, when transport was given, when the bed was clean, who accepted the patient. We have looked at everything. So, it allows us to go back and, in a quality, driven way, figure out where our loopholes are and how we can get them better. It's is a constant move towards quality and towards making it a lot better.

The coordinator highlighted the data-driven nature of their system. The directors of transport even received a text alert when a transporter went over a predetermined amount of time for a patient transport. The TeleTracking system enabled tracking on staff and patient level and therefore delivered trustworthy data points, from which the best decision would be made. Second, the PTD appeared to be changing decision-making processes between clinicians and administrators. This was discussed in interviews with staff from the PTD and other administrators and clinicians, as well as in observations. One floor nurse said:

There are more elements to it for now, I used to wait and see what docs wanted or they could ask for a bed change, now I wait for PTD to call me. And they do, a lot. It's like the tracking board says which bed, and the doctor has to listen. Which I like.

This nurse explained her reactions to the changes in decision-making. Though it was all just a new process, “that would probably change again” to her³², she confirmed that TeleTracking had a lot to do with patient movement and placement throughout the clinical units. And for many nurses, being able to point to the tracking board and PTD made their interactions with difficult physicians easier.

³² Caveats like these align with clinicians' general skepticism of many of the IT solutions implemented at Borough.

Similarly, I witnessed dashboards being pushed to solve problems and automated tracking data to be prioritized over clinician judgement during administrative meetings. Dashboards and other HIT can account for very little in a patient-provider interaction and there is growing evidence of algorithms and artificial intelligence reproducing bias and inequity (Obermeyer et al. 2019; Obermeyer and Mullainathan 2019; Quinn 2016). Especially with regards to quality metrics, the CMIO would often delay clinicians' requests for EHR changes because he wanted to make sure the EHR was always producing usable data. In an RTF meeting he stated this: "If the forms aren't dynamic, producing data than it's not worth it. Let's not get stuck in the forms that aren't updating, dynamic, changeable and useful." Administrators reiterated often that care delivery, operations, and flow would all be improved with standardization and automation; as long as processes were trackable, quality could be ensured. In a later interview the CMIO continued his thoughts on IT and quality:

Quality and safety becomes, every single time that something goes wrong, they expect IT to find the solution. And that's why every single meeting, whenever it happens, the first call comes – 'Hey, we need to the data from there, we need to track this.'

For him, the intersections of quality, data, and IT were both about technical solutions and thinking ahead for future reporting requirements. What was most evident in my analysis was the emphasis placed on standardization and it seemed clear clinician expertise did not always fit. The metrification of flow was seemingly strengthened through its automation in the PTD. I observed increasing reliance on technical solutions, which facilitated standardized and therefore trustworthy data that was extended for use in decision-making related and unrelated to quality metrics. I contend that as the prominence of data-driven authority expanded, it increasingly encroached on clinician expertise

Metrics for length of stay and readmissions continue to support the measurement of flow at Borough. When measurement and quantification of flow are prioritized as central components of quality it further emphasizes the need for tracked and reliable healthcare data. Reliable data is standardized and automated, thus legitimizing data-driven decision-making as an implicitly trusted companion to clinician decision-making. Metrification and an imperative for standardization situate the management of flow as data-driven and begin to narrow clinical decision-making associated with quality measurement and specific metrics.

(Re)organizing Flow

I found two significant common threads in the Patient Tracking Department and both ED and hospital-wide flow metrics; first, a focus on larger systems of movement throughout the hospital, and second, significant reorganization of hospital staff. In this section, I attend to the changing organization of staff roles and clinician responsibility at Borough. I continue to elucidate changes to clinician decision-making and contend that the (re)organization set in motion by flow, facilitates *quality culture*. The PTD helps to show how a technical imperative for data-based quality measurement helps to demarcate clinical success by its efficiency

The most explicit indication of changing staff roles and reorganization was the creation of the Patient Tracking Department. Under the direction of the also newly appointed Director of Operational Efficiency, the PTD merged both the duties and positions of staff from the Admitting Department, Nursing Administration, and Patient Transport. In addition, new roles were created for PTD Coordinators, who oversaw the operational component of moving patients throughout Borough. The PTD Coordinators were nurses with critical care training and were pulled from their previous clinical jobs to join the PTD. In addition to the nurses leading flow

and the tracking boards, the PTD was made up of the assistant director of the Admitting Department, the director and assistant director of Patient Transport, two patient representatives, and an IT specialist. In their new roles, staff pulled from the admitting and transport departments, had increased responsibility for the “whole house,” while maintaining their focus on patient movement. One PTD coordinator explained her position: “Our role as a [PTD] nurse coordinator should be coordinate the flow of movement of all patients in the house. We control almost all 600 beds in the house.” The creation of this department appeared to solidify administration’s expectations optimized flow and staff responsibility for flow beyond their own departments. At Borough, PTD was a central hub for all things flow related and represented a strong multidisciplinary department.

I interviewed the two lead nurse coordinators. The first came to the PTD from her job as the nurse manager of the Intensive Care Unit and the second had been an assistant manager in the Emergency Department. The PTD nurse coordinators both discussed being concerned with flow even before they were transferred to the PTD:

I used to manage the flow in the ED and it was blind. We had no idea what was going on upstairs. We had no line of communication, our admitting department relied on the nursing staff upstairs and the clerks upstairs to be honest and truthful about beds that were opening.

I was the manager of the intensive care unit – SICU and MICU. Our responsibility in the SICU, I would say good percentage of it was flow, except it won't pay me. We do a lot of flow because what people don't understand, [and that is why] this role is driven by a lot of critical care nurses, you need to know the ICU, know the whole house.

Each of them expressed being supportive of the creation of the PTD and patient tracking generally. In their old positions they explained how they felt like they were in charge of flow in a siloed system, without being recognized (or paid) for it. Both nurses reported that clinical divisions and medical units had no efficient way of communicating about admissions, transfers,

or open beds, and shared anecdotes of “hidden” clean beds and physicians choosing where they wanted their patients to go based on their preference rather than clinical necessity.

Elements of the “old” Borough culture³³ emerged from multiple discussions of flow and the PTD. In interdisciplinary patient rounds and huddles, frustrations of physicians “choosing” what unit they wanted their admitted patients to go came up repeatedly. This was echoed by the Director of Operational Efficiency and the floor nurse from the previous section. Aligning with what we saw in Chapter Two, assumptions of culture were used to make distinctions about good or bad flow. The creation of the PTD and the reorganization of staff responsibilities appeared to be an attempt to codify the same *quality culture* explicated in Chapter Two. Both administration and PTD staff wanted to move away from ad hoc decision-making about admissions, communication and negotiation between clinical units, and the prioritization of physician preference. The creation of PTD explicitly redirected attention and labor to hospital flow, while also changing the way Borough as an organization navigated decisions about patient movement. Clinicians were implicated here as well. As shown in the previous section, at Borough, clinicians’ decision-making was increasingly bounded by standardization and the authority of quality efforts like PTD and teletracking. While nurses managed the PTD and teletracking, it is important to qualify that they were no longer working clinically, instead they were now administrators. No physicians were assigned to the PTD. The parameters of, particularly physicians,’ past influence were being renegotiated. Here, reorganizing staff roles, and their labor generally, aligned with the interests of quality culture via flow.

I also interpreted system and technical changes as part of the (re)organization happening around the prioritization of flow. In early 2019 the PTD initiated a new EHR project aimed at

³³ See Chapter Two

improving the impact of interdisciplinary patient rounds and hospital flow. Patient discharge was again a central concern of efforts to improve hospital flow. As we saw with interdisciplinary rounds, it was imperative for clinicians and administrators to plan for patient discharges before they happened. One of the nurse coordinators for PTD reported taking a special interest in discharge delays.

My biggest problem and my biggest pet peeve is that patients don't leave until after four pm. So, I presented [this at] our patient flow council, that a huge percentage of the patients leave after four. But most of those patients, when you looked at those patients individually, they are discharged with no services, so why they leaving late? So that's something wrong with the system.

She explained an existing discharge problem within Borough's flow. She reported that the majority of patients leave the hospital in the evening, despite when they are officially discharged.³⁴ This should not be happening, especially when there are discharges that do not require additional services or coordination. After looking at the data and researching the discharge rates, the PTD decided to focus part of their efforts on this problem.

In addition to discharge being prioritized in interdisciplinary rounds, the PTD developed a technical solution to the discharge problem. The goal was to increase staff attention to discharge by adding discharge information to a key area in the EHR. The "estimated date of discharge" would be added to the patient information banner on every chart. Typically, the banner contains information such as patient name, medical record number, date of birth, age, weight, allergies and hospital room and bed number, in other words the most critical patient data. Adding an estimated discharge date to this location, emphasized how important it was to the PTD. Not only did this addition to the EHR require a lot of IT work, it also marked what I saw to be an important shift in what could be included as critical patient data. Further, and as shown in

³⁴ A discharge order must be placed by a physician in the EHR.

the previous section, the growing reliance on technical solutions readied Borough for this data-based modification.

Once implemented, the estimated date of discharge was meant to be discussed and updated every day during rounds. Further, the goal of its inclusion in the EHR banner was to ensure it would become a central part of everyone's approach to the patient's plan of care. Typically, resident physicians under the supervision of an attending physician make decisions about discharge. Based on the patient's clinical hospital course, physicians may tell nurses or the patient when they expect a discharge to take place. Ideally, case management would already be aware of the patient and investigating what social factors may impact a discharge (eg. family makeup, transportation, medical equipment orders, disposition location). Many staff, including the PTD coordinators, floor nurses, and physicians, noted that this process was rarely efficient and often caused discharge delays. My participants reported that it was beneficial therefore, to direct as many resources as possible to facilitating better interdisciplinary communication and planning prior to discharges.

When I was first told about the discharge date project it was not yet implemented. As with other Borough projects, the PTD planned to pilot it on one unit first, following evidence and best practice for establishing new patient care procedures. For a few months during my fieldwork I heard about the project in from an IT perspective in Rapid Task Force meetings, from nursing in their council meetings, and from senior leadership in interviews. While IT struggled most with the logistics of the technical addition, others seemed very excited about it. Similarly, to my observations of interdisciplinary rounds, discharge appeared to be increasingly important. Patient discharges were seemingly targeted as a pliable, yet reparable element of flow guaranteed to improve quality.

A focus on discharge aligns with what Borough administrators told me early on, the “hospital is the worst place to be.” However, I found the addition of an “estimated date of discharge” to the EHR to also be a result of the (re)organization that a focus on flow necessitates. This technical solution to a problem that was currently being addressed through the organization of patient rounds and interdisciplinary communication, also pointed to a shift in the management of clinical discharge information. Although discharge date would continue to be determined by physician staff, its required placement on the EHR banner seemed to codify a renewed urgency for discharge.

I argue it was the prioritization of improving hospital flow for quality, that created both that urgency and the (re)organization of both IT and staff resources. Including the discharge date as part of crucial patient data was a change in organization that, in addition to its goals for early discharge, also created data for patient tracking. The efforts made around discharge seemed to run parallel with my participants’ accounts of tracking more broadly. When discussing bed tracking and discharges, a nursing director stated, “if everything is tracked, we can trust the data and use it to improve quality.” I found the trust in data to be a critical part of participants’ accounts of quality, particularly as it related to flow. The medical director of the ED similarly said, “everything about throughput is about tracking timings” At Borough, data and their surveillance capabilities are increasingly used to plan hospital stays, plan or even predetermine care delivery, and often dictate discharges.

The (re)organization of efforts promised to improving flow not only emphasized a reliance on data and tracking, but also indicated how a narrowing of clinician decision-making was made possible by data-driven authority. Further, I contend that as long as flow was data-driven, quality could be assumed. Reinforced by *quality culture*, clinical success seemed to be

increasingly explained by efficient flow, which was ensured by surveillance, data, and automation. I offer *abstracted surveillance protocols* as a way to characterize the (re)organization of care delivery I observed at Borough. *Abstracted surveillance protocols* are the measurement-based, clinical protocols required for successful quality measurement. They rely on surveillance and abstracted documentation data to standardize and automate care delivery so that it may be easily measured and reported for quality compliance.

Conclusion

In this chapter, I have examined how throughput, or flow, and the increasing metrification of both organizational and care processes settings have shifted makers of clinical success, narrowed aspects of clinician decision-making, and contributed to a (re)defining of quality in healthcare. While some participants echoed healthcare literature by affirming that flow was “quality on so many levels,” I complicated that notion with clinician accounts of managing flow and evidence of the prioritization of tracking and surveillance. At Borough Hospital, processes such as flow, discharges, and admissions were increasingly quantified. I argue that quantifying these complex processes with often simplistic metrics for throughput, is an example of metrification and thereby the assumption of their neutrality (Espeland and Sauder 2016; Porter 1995; Timmermans and Epstein 2010). I elucidated how flow accounts for more than solely the movement of patients throughout the hospital and helps to conflate clinical success with efficiency, ultimately becoming an element of *abstracted surveillance protocols*.

Importantly, this chapter does not make a case for or against attention to hospital and patient flow in healthcare settings. Instead, it analyzes the ways patient movement at Borough was mechanized and redefined in the interest of *quality culture*. At Borough, the emphasis on

flow metrics often allowed for increased resources or clinician support, and highlighted problems like admission and discharge delays hospital wide. I do contend however, that the attention to quantifying flow and measuring efficiency (re)organized care delivery and shifted elements of clinical authority at Borough. Building from the work of those who consider the utility of potentiality and future success, flow, as an element of quality, seems to blur the boundaries between previously disparate markers of success by ensuring and embedding the inevitable success of “quality” (Adams et al. 2009; May and Finch 2009; Turner 1997). These accounts of potentiality and normalization reveal the ways that explaining flow and quality based on their future success, constructs them inevitable and irrefutable.

The muddying of clinical success also implicated the (re)formation of care delivery in multiple ways. There appeared to be a narrowing of clinician, and especially physician, decision-making when flow, admissions, or discharges were protocolized. Data-driven decisions were trusted alongside existing clinician expertise. Literature on deskilling and medical education, points to ongoing shifts in medical authority (Hoff 2011; Jenkins 2018; Starr 1982). At Borough, it appeared clinicians were often less involved in patient care decisions that were quantified through metrics and protocols. Borough’s care goals for patient throughput, discharges, and future readmission were administrative priorities. As such, their quantification through data and automation was increasingly seen as optimum. The establishment of an entities like the Patient Tracking Department emphasizes that data and tracking were considers arbiters of clinical success (Cooley and Snyder 2015; Eubanks 2017; Muller 2018). I found the influence of quality to be extended, while simultaneously being limited by its reliance on quantification. That is, quality as a brand could be applied to any healthcare process, but the parameters of how that quality would be proven all relied on data and measurement. This reliance, taken with the agency

and disciplining power of *quality culture* and the protocolization of complex care practices helped to (re)organize care delivery and narrow clinical decision-making. Further, this (re)organization is a central element of how *abstracted surveillance protocols* increasingly define quality healthcare delivery.

CHAPTER FIVE: CONCLUSION

Summary and Key Findings

In this dissertation I have demonstrated the ways quality measurement is (re)structuring elements of care delivery in a healthcare setting like Borough Hospital. I argue that measurement-based, clinical protocols that rely on surveillance and abstracted documentation data increasingly standardize processes of quality care and distance care—that is, clinician labor—away from the bedside. Throughout this fifteen-month ethnography, I problematized taken-for-granted linear associations between quality and healthcare success. That is, taking a critical sociological perspective, I investigated both the visible and invisible elements of quality measurement in healthcare delivery. While specific to Borough Hospital, these findings suggest tendencies towards protocolization and narrowing definitions of quality can be extended into other hospital systems particularly in light of widespread consolidation.

As I have shown, the (re)structuring of care delivery allows for highly complex clinical processes to be assessed more by their metric compliance than their clinical realities. In turn, this begins to reify meanings of quality that are abstracted from the direct patient care. That is, quality measurement emphasizes elements of quality that do not take place directly at the bedside, such as documentation, reporting, and engagement. Those elements are then measured and rewarded as quality successes. While these processes can physically distance clinicians from their patients, I contend that what is more salient is the structural distancing work. Quality measurement both increases and emphasizes the elements of quality not at the bedside in definitions of quality care. Providing quality care at the bedside is often unpredictable and unruly, and in fact complicates the role of quality measurement in ensuring “effective, safe,

efficient, patient-centered, equitable, and timely care” (CMS 2019b). I elucidate such complications in each chapter.

In Chapter Two, I described the conditions and function of *quality culture* at Borough Hospital. Beginning with an analysis of the way “culture” was used in both assumptions and assertions of organizational structure, I explicate the processes by which *quality culture* is built in a framework of neutrality (Collins 2010; Foucault 1978; Latour 2005). I showed how, at Borough, understandings of culture took on both far-reaching influence and nebulous meanings. After tracing the diffuse use of “culture” by administrators and clinicians at Borough, I positioned its use in the context of evidence-based and best practices and examined the operationalization of quality in projects such as safety and non-punitive cultures and visibility boards (Mannion and Davies 2018; Martin et al. 2013). At Borough, there was utility in asserting quality through standardized practices and processes that implicated hospital staff in systems of accountability (Martin et al. 2013; May and Finch 2009; Turner 1997). I argue that *quality culture*, therefore, acts as a disciplining agent in clinical settings, enacting quality and quality measurement.

Chapter Three examined quality measurement through a case study of a specific set of quality metrics. Sepsis is a critical and complex medical condition that often presents to the emergency department. I described the background and reasoning for the quality measurement of sepsis treatment characterize its management at Borough Hospital. Building from my analysis of *quality culture* in Chapter Two, I focused on how quality is enacted on the clinic floor in Chapter Three. I traced the metrification of sepsis treatment by following clinicians and administrators as they manage and attempt to comply with multiple metrics for sepsis treatment. I argue that metric compliance is increasingly emphasized over direct patient care, revealing how Borough

hospital was “failing the metric” but still decreasing sepsis mortality rates. As such, I articulated the necessity of documentation, surveillance, and protocols in reporting on and complying with metrics (Cooley and Snyder 2015; Espeland and Sauder 2016; Muller 2018). In sum, Chapter Three contends that the protocolization of complex clinical conditions (re)orients both quality and care delivery towards future measurement and compliance.

In Chapter Four, I considered how patient movement throughout hospitals, like Borough, is quantified in *quality culture*. Through an examination of throughput (flow) metrics and other methods taken to improve hospital flow, this chapter elucidated the narrowing nature of clinician decision-making at Borough. I showed an increasing emphasis, and moreover reliance, on technical solutions and tracking, lending to data-driven decision-making (Porter 1995; Timmermans and Epstein 2010). Thus, I argue through the shift toward the prioritization of metrics, necessitate the (re)organization of staff responsibilities and ultimately begin to narrow clinical decision-making (Hoff 2011; Knopes 2020b; Zibrowski et al. 2018). I further contend, using Borough as an exemplar, that protocolized, data-driven decisions are often valued over bedside decision-making, as long as clinical quality remains bound to efficiency and measurement by *quality culture*. Protocolization, standardized data, and compliance in these spaces shape what I call abstracted surveillance protocols, which increasingly structure potential definitions of quality. The measurement of highly complex healthcare processes necessitates engagement with *abstracted surveillance protocols* as indicators of quality. Each chapter presents elements of a quality measurement apparatus at Borough Hospital. The consideration of these efforts at Borough, has clarified the structuring and disciplining work quality performs in clinical settings generally.

Abstracted Surveillance Protocols

In multiple locations throughout this dissertation, I highlight instances in which meanings of quality are distanced or abstracted from direct patient care and clinical success is (re)defined as efficiency and standardization. Quality, as defined by *abstracted surveillance protocols*, is effective when it is surveilled, documented, and standardized. I describe three facets of quality measurement related to these processes: *quality culture* asserts agency through the conditions of quantification and metrification; protocolization is increasingly utilized to demonstrate quality; and quality care-related decisions rely on systems of automated data. These processes form the basis for *abstracted surveillance protocols*. *Abstracted surveillance protocols* are characterized by measurement-based, clinical protocols, which utilize surveillance and abstracted documentation data in order to standardize practices for quality care.

As outlined in the dissertation, *abstracted surveillance protocols* emerged from my analysis of the enactment of quality measurement at Borough Hospital. At Borough, an imperative for quality measurement enabled authoritative yet diffuse meanings of quality. By both obscuring and diffusing meanings of quality, *quality culture* could be utilized as an inevitable and neutral actor in organizational efforts for quality measurement. However, while the conditions of *quality culture* were indeed neutralized, quantification and metrification were explicitly tied to establishing the “right” organization culture. As such, in order to report and comply with quality metrics, care processes and practices were increasingly protocolized and standardized. Further, *future* measurement, via reporting and compliance, was often prioritized over clinical barriers to or challenges of metrics.

Simultaneously, administrative emphasis on reporting necessitated increasing surveillance and tracking for the production of usable and meaningful data; data that would

purportedly be able to automate operational and clinical processes. As data-driven decision-making is increasingly trusted and relied upon, the breadth of clinician decision-making begins to narrow. In the context of quality measurement, clinician expertise and authority can be framed as subjective or part of a “old” culture, while data is trusted as objective. Especially for decision-making that is part of a measured and reported process, clinician authority is often limited by data-driven expertise. Similarly, in protocolization, data-driven expertise also tends to abstract patient care away from quality success. I argue, that abstraction or distancing of bedside care is what creates analytical space for *abstracted surveillance protocols* in definitions of quality. The imperative for quality measurement seemingly warrants that care delivery may not always be the key component of quality. That is, the value of direct patient care as delivered by clinicians is conditioned by its quantification and its alignment with metrics and protocols. Quality is increasingly (re)defined by *abstracted surveillance protocols* because they are legitimized by evidence-based and best practices within the framework of *quality culture*.

Implications and Future Directions

Sociological Implications

In this dissertation, I argue that quality measurement at Borough Hospital has transformed the ways quality is enacted and defined. By showing how quality culture acts as its own agent, complex healthcare processes are protocolized, and data-driven decision-making narrows clinician authority, I offer *abstracted surveillance protocols* as a tool for understanding quality and quality measurement. These findings engage with scholarship on surveillance and quantification, with a particular focus on the obscuring of complex processes. This research extends the work of scholars who have explored the unintended consequences of healthcare

processes and biomedical technologies (Clarke et al. 2010; Mamo and Fosket 2009; Rab Alam 2016; Shim 2014). By considering quality measurement through the lens of its structuring and conditioning functions, I was able to analyze both the seen and unseen elements of quality (Benjamin 2016; Foucault 1972; Rose 2007). Thus, expanding the range of seeable consequences related to quality healthcare delivery.

The utilization of data in surveillance and tracking emerged as a significant piece of my analysis. With consideration of Foucault's disciplining power, I developed the scope of his analysis to health systems and forms of more active measurement surveillance (Foucault 1978, 1995; Martin et al. 2013; Saver et al. 2015). Aligning with other scholars, I have also produced evidence pointing to the convergence of quantification, data, and surveillance (Eubanks 2017; Greenfield 2017; Muller 2018; Zuboff 2019). Such a convergence highlights the need for increasing sociological inquiry in healthcare measurement specifically, where quantification is only increasing, and data is only proliferating. As our understandings of quality are reshaped, there will be significant consequences for patient and clinicians, and space for social scientists to intervene. I suggest, however, that in the case of quality measurement, sociologists can both be part of innovation processes and continue to question if, in fact, there is a meaningful metric (Martin, McKee, and Dixon-Woods 2015; Timmermans and Berg 2003).

Quality Metrics in the Wake of COVID

As sociologists we are trained to look for the unintended consequences. Clarke et al. (2010), Bliss (2018), and Benjamin (2016) offer reminders of the ways inequalities are often obscured or neutralized through technical and biomedical systems. As I finish writing this dissertation, we are in the midst of the 2020 COVID-19 Pandemic. As I struggled to wrap my head around the ways my research, and moreover my writing, would play a role in such a

significant healthcare crisis, I came across a physician friend's Instagram post. He happily shared that some regulatory documentation policies had been suspended in NYC. He was referring to *Executive Order 202.10 Continuing Temporary Suspension and Modification of Laws Relating to the Disaster Emergency*. The NY State Governor issued an executive order on March 23 that relieved clinicians of any chart documentation requirements that were not directly necessary for the treatment of COVID-19 (Cuomo 2020). This included documentation dictated by billing or reporting requirements. Similarly, CMS announced they were issuing exceptions and extensions for the reporting requirements in Medicare quality reporting programs³⁵ (CMS 2020). In the CMS press release they included a quote from the CMS administrator:

In granting these exceptions and extensions, CMS is supporting clinicians fighting Coronavirus on the front lines...The Trump Administration is cutting bureaucratic red tape so the healthcare delivery system can direct its time and resources toward caring for patients. (2020)

Effectively, the suspension of these requirements indicated that state and federal health agencies recognized their own limitations; CMS referred to their own programs as “bureaucratic red tape” that got in the way of caring for patients. Times of crisis illuminate truths that society is often unwilling to admit in “normal times.” While obviously, policy reactions to this pandemic should not be extended to a normal health system, such admissions raise serious questions about increasing EHR documentation requirements and quality measurement for regulatory purposes. How can it be that the systems that ensure the highest quality care, cannot stay in place when direct patient care and clinician expertise are crucial? This tension amplifies the findings of the dissertation. Even though healthcare crises change the context of care delivery, healthcare

³⁵ The CMS list of programs that fell under this action included but was not limited to: Hospital Inpatient Quality Reporting Program; Hospital Readmissions Reduction Program; Hospital Value-Based Purchasing Program; Hospital-Acquired Condition Reduction Program; Quality Payment Program - Merit-based Incentive Payment System (MIPS); Medicare Shared Savings Program Accountable Care Organizations (ACOs).

administration, and healthcare regulations, I suggest that this allows us to see where patient care matters most, and further how quality has been (re)defined by *abstracted surveillance protocols*. It is not surprising that measurement systems that increasingly distance quality from the bedside are not useful when quality patient care matters the most.

I would also like to position this dissertation in the context of New York City healthcare. As was discussed in this dissertation, consolidation and corporatization is a large factor in the provision of healthcare throughout NYC. A range of conditions, including decreasing public funding, changing insurance models, social inequalities, as well as consolidation, have created a system of vastly unequal healthcare and hospitals in the city. The city's public hospitals struggle to serve their patients, let alone keep up with the growth and modernization of large corporate hospitals systems, like New York University Langone Health, New York Presbyterian, Mount Sinai, and Montefiore Health. The context of NYC healthcare is important here because hospitals that stand to gain or lose the most with Medicare's quality and reimbursement programs are those which serve the most vulnerable patients. While every health system receives payments from CMS (and participate in quality programs), we know some rely on it more heavily, and therefore the consequences of "failing a metric" carry different weight for hospitals along this dimension. A recent New York Times article confirmed that in a public NYC hospital, "Most of the hospital's patients are poor and people of color, and it gets more than 80 percent of its revenue from government programs like Medicare and Medicaid" (Schwartz 2020). Patients and their access to "quality" healthcare are being further stratified by these systems that emphasize quality measurement as the key to improved healthcare systems.

Even though a hospital like Borough receives revenue from private insurance in addition to CMS funding, the alliance of entities such as CMS, Joint Commission, DOH, and AHRQ in

prioritizing quality measurement and the muddying of boundaries between funding mechanisms, public reporting, and metrics, creates a significant potential for inequality. We see this in other domains as well, such as in education (Muller 2018). Programs that advocated for increased standardization and quantification as tools for “improving education,” further penalized the “failing” schools; those already facing structural inequities. Following this logic, it can be suggested that tying quality measurement to success and funding will further stratify already poor hospitals, their patients, and healthcare broadly.³⁶

Future Research

This dissertation offers a number of directions for further research on quality and quality measurement. Namely, research on more, and a wider range of healthcare institutions navigating quality measurement would be beneficial to understand how the trends I describe in this dissertation are playing out elsewhere. More studies are needed to track trends throughout healthcare systems as well as to not the unique challenges certain types of health systems may face. Similarly, comparative work on hospitals participating in quality reporting programs specifically is needed. Implications for health equity and healthcare access could be exposed by investigating clinical sites doing measurement “right” and those which are “failing.” I would also call for research that helps to further critique and challenge the way quality measurement currently functions in healthcare. Finally, as mentioned, I suggest the continued integration of social scientists in quality measurement initiatives – the quality bus may have left the station, but perhaps we can engage in order to better the fall out.

³⁶ It is important to note these inferences are based on my analysis of quality measurement and inequities in an urban setting, rural hospitals and healthcare systems in the US of course face their own set of challenges.

Final Conclusions

This dissertation examined the (re)structuring of healthcare delivery through quality measurement. After completing a fifteen-month ethnography at my field site, Borough Hospital, I argue that administrative prioritization of quality measurement, and in particular quality metrics, necessitates the protocolization of complex healthcare processes and increasingly relies on data-driven decision-making. This account of quality is distinctive to the current healthcare landscape – characterized by the proliferation of data and technological resources, consolidation, corporatization, changing clinician roles, increasing inequality – yet contributes significant findings. Ultimately, I suggest quality care has been (re)defined by measurement-based, clinical protocols, which I call *abstracted surveillance protocols*, that increasingly standardize and constrain care delivery.

REFERENCES

- Aaronson, Emily L., Michael R. Filbin, David F. M. Brown, Kathy Tobin, and Elizabeth A. Mort. 2017. "New Mandated Centers for Medicare and Medicaid Services Requirements for Sepsis Reporting: Caution from the Field." *Journal of Emergency Medicine* 52(1):109–16.
- Adams, Vincanne, Michelle Murphy, and Adele Clarke. 2009. "Anticipation: Technoscience, Life, Affect, Temporality." *Subjectivity* 28:246–65.
- Adler-Milstein, Julia, Wendi Zhao, Rachel Willard-Grace, Margae Knox, and Kevin Grumbach. 2020. "Electronic Health Records and Burnout: Time Spent on the Electronic Health Record after Hours and Message Volume Associated with Exhaustion but Not with Cynicism among Primary Care Clinicians." *Journal of the American Medical Informatics Association : JAMIA* 27(4):531–38.
- AHRQ. 2017. *National Quality Strategy Overview Background on the National Quality Strategy*.
- AHRQ. 2019a. "Culture of Safety | PSNet." *PSNet*. Retrieved January 23, 2020 (<https://psnet.ahrq.gov/primer/culture-safety>).
- AHRQ. 2019b. "Predictive Analytics Challenge: About the Challenge." *Agency for Healthcare Research & Quality*. Retrieved September 16, 2019 (<https://www.ahrq.gov/predictive-analytics-challenge/about.html>).
- AHRQ. 2020. "Surveys on Patient Safety Culture (SOPS) Hospital Survey." *Agency for Health Research and Quality* 1. Retrieved May 1, 2020 (<https://www.ahrq.gov/sops/surveys/hospital/index.html>).
- Allen-Duck, Angela, Jennifer C. Robinson, and Mary W. Stewart. 2017. "Healthcare Quality: A Concept Analysis." *Nursing Forum* 52(4):377–86.

- AMN. n.d. "How to Create a No-Blame Work Environment | RN.Com Nursing News." *AMN Healthcare Education Services*. Retrieved April 9, 2020 (<https://www.rn.com/nursing-news/how-to-create-a-no-blame-work-environment/>).
- ANA. n.d. "Culture of Safety | American Nurses Association." 2017. Retrieved April 9, 2020 (<https://www.nursingworld.org/practice-policy/work-environment/health-safety/culture-of-safety/>).
- Anderson, Warwick. 1992. "The Reasoning of the Strongest: The Polemics of Skill and Science in Medical Diagnosis." *Social Studies of Science* 22(4):653–84.
- Ayanian, John Z. and Howard Markel. 2016. "Donabedian's Lasting Framework for Health Care Quality." *New England Journal of Medicine* 375(3):205–7.
- Barbash, Ian J., Billie Davis, and Jeremy M. Kahn. 2019. "National Performance on the Medicare SEP-1 Sepsis Quality Measure." *Critical Care Medicine* 47(8):1026–32.
- Barbash, Ian J. and Jeremy M. Kahn. 2019. "Sepsis Quality in Safety-Net Hospitals: An Analysis of Medicare's SEP-1 Performance Measure." *Journal of Critical Care* 54:88–93.
- Barbash, Ian J., Kimberly J. Rak, Courtney C. Kuza, and Jeremy M. Kahn. 2017. "Hospital Perceptions of Medicare's Sepsis Quality Reporting Initiative." *Journal of Hospital Medicine* 12(12):963–68.
- Barve, Kanchan and Ryan Kruer. 2018. "Using Daily Management and Visual Boards to Improve Key Indicators and Staff Engagement." *NEJM Catalyst* May 15.
- Becker's Healthcare. 2012. "6 Elements of a True Patient Safety Culture." *Becker's Healthcare*. Retrieved March 10, 2020 (<https://www.beckershospitalreview.com/quality/6-elements-of->

a-true-patient-safety-culture.html).

- Bell, Susan and Anne Figert. 2015. *Reimagining (Bio)Medicalization, Pharmaceuticals and Genetics: Old Critiques and New Engagements*. edited by S. Bell and A. Figert. New York: Routledge.
- Benjamin, Ruha. 2016. "Catching Our Breath: Critical Race STS and the Carceral Imagination." *Engaging Science, Technology, and Society* 2(0):145.
- Bhattacharjee, Papiya and Pradip Kumar Ray. 2014. "Patient Flow Modelling and Performance Analysis of Healthcare Delivery Processes in Hospitals: A Review and Reflections." *Computers and Industrial Engineering* 78:299–312.
- Birkmeyer, John. 2016. "Why Health Care Mergers Can Be Good for Patients." *New England Journal of Medicine Catalyst*(October).
- Bliss, Catherine. 2018. *Social by Nature: The Promise and Peril of Sociogenomics*. Stanford, CA: Stanford University Press.
- Braithwaite, Jeffrey, Jessica Herkes, Kristiana Ludlow, Luke Testa, Gina Lam, and Gina Lamprell. 2017. "Association between Organisational and Workplace Cultures, and Patient Outcomes: Systematic Review." *BMJ Open* 7(11):1–11.
- Bridges, Khiara M. 2011. *Reproducing Race: An Ethnography Ofpregnancy as a Site of Racialization*. Oakland, CA: University of California Press.
- Burstin, H., S. Leatherman, and D. Goldmann. 2016. "The Evolution of Healthcare Quality Measurement in the United States." *Journal of Internal Medicine* 279(2):154–59.
- Burwell, Sylvia M. 2015. "Setting Value-Based Payment Goals - HHS Efforts to Improve U.S.

- Health Care.” *New England Journal of Medicine* 372(10):897–99.
- Caldwell, Patrick. 2015. “We’ve Spent Billions to Fix Our Medical Records, and They’re Still a Mess. Here’s Why. – Mother Jones.” *Mother Jones*. Retrieved October 23, 2017 (<http://www.motherjones.com/politics/2015/10/epic-systems-judith-faulkner-hitech-ehr-interopability/>).
- Casalino, Lawrence P., David Gans, Rachel Weber, Meagan Cea, Amber Tuchovsky, Tara F. Bishop, Yesenia Miranda, Brittany A. Frankel, Kristina B. Ziehler, Meghan M. Wong, and Todd B. Evenson. 2016. “US Physician Practices Spend More Than \$15.4 Billion Annually To Report Quality Measures.” *Health Affairs* 35(3):401–6.
- Cawley, Patrick and Phyllis Hanlon. 2005. “Maximizing Throughput and Improving Patient Flow.” *The Hospitalist* 2005(9).
- Challen, Robert. 2019. “Emerging Safety Issues in Artificial Intelligence .” *PSNet AHRQ*. Retrieved April 27, 2020 (<https://psnet.ahrq.gov/perspective/emerging-safety-issues-artificial-intelligence>).
- Charmaz, Kathy. 2014. *Constructing Grounded Theory*. 2nd ed. Los Angeles: Sage Publications.
- Chartier, Lucas Brien, Licinia Simoes, Meredith Kuipers, and Barb McGovern. 2016. “Improving Emergency Department Flow through Optimized Bed Utilization.” *BMJ Quality Improvement Reports* 5(1):u206156.w2532.
- Chassin, Mark R. and Jerod M. Loeb. 2011. “The Ongoing Quality Improvement Journey: Next Stop, High Reliability.” *Health Affairs* 30(4):559–68.
- Chassin, Mark R., Jerod M. Loeb, Stephen P. Schmalz, and Robert M. Wachter. 2010.

- Accountability Measures-Using Measurement to Promote Quality Improvement*. Vol. 12.
- Clarke, Adele, Carrie Friese, and Rachel S. Washburn. 2017. *Situational Analysis: Grounded Theory After the Interpretive Turn / Edition 2*. 2nd ed. Los Angeles: Sage Publications.
- Clarke, Adele, Laura Mamo, Ruth Fosket, Jennifer Fishman, and Janet Shim. 2010. *Biomedicalization: Technoscience, Health, and Illness in the US*. edited by A. Clarke, L. Mamo, R. Fosket, J. Fishman, and J. Shim. Durham, NC: Duke University Press.
- CMS. 2017a. *2016 Measure Information About the 30-Day All-Cause Hospital Readmission Measure*.
- CMS. 2017b. "Quality Measure and Quality Improvement | CMS." Retrieved January 23, 2020 (<https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/MMS/Quality-Measure-and-Quality-Improvement->).
- CMS. 2018. *Sepsis Bundle Project (SEP) 5.5 National Hospital Inpatient Quality Measures*.
- CMS. 2019a. *Emergency Department Throughput Measures Stratification*.
- CMS. 2019b. "Quality Measures." Retrieved September 16, 2019 (<https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/QualityMeasures/index.html>).
- CMS. 2020. *CMS Announces Relief for Clinicians, Providers, Hospitals and Facilities Participating in Quality Reporting Programs in Response to COVID-19*.
- Cockerham, William C. 2015. "Max Weber: Bureaucracy, Formal Rationality and the Modern Hospital." Pp. 124–38 in *The Palgrave Handbook of Social Theory in Health, Illness and Medicine*, edited by F. Collyer. London: Palgrave Macmillan.

Collins, Harry. 2010. *Tacit and Explicit Knowledge*. Chicago: University of Chicago Press.

Conrad, Peter. 1992. "Medicalization and Social Control." *Annual Review of Sociology* 18:209–32.

Conrad, Peter and Kristen Barker. 2010. "The Social Construction of Illness: Key Insights and Policy Implications." *Journal of Health and Social Behavior* 51(S):S67-79.

Cooley, Alexander and Jack Snyder. 2015. *Ranking the World: Grading States as a Tool of Global Governance*. Cambridge, UK: Cambridge University Press.

Creswell, John W. 2013. *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*. 3rd Ed. Los Angeles: Sage Publications.

Cruz, Taylor. 2018. "Reform by Numbers: Accountability and the Sociotechnical Transformation of American Medicine." University of California, San Francisco.

Cuomo, Governor Andrew. 2020. *No. 202.10: Continuing Temporary Suspension and Modification of Laws Relating to the Disaster Emergency* | Governor Andrew M. Cuomo.
<https://www.governor.ny.gov/news/no-20210-continuing-temporary-suspension-and-modification-laws-relating-disaster-emergency>.

Curry, Leslie A., Marie A. Brault, Erika L. Linnander, Zahirah McNatt, Amanda L. Brewster, Emily Cherlin, Signe Peterson Flieger, Henry H. Ting, and Elizabeth H. Bradley. 2018. "Influencing Organisational Culture to Improve Hospital Performance in Care of Patients with Acute Myocardial Infarction: A Mixed-Methods Intervention Study." *BMJ Quality and Safety* 27(3):207–17.

Davies, Huw T. O., Sandra M. Nutley, and Russell Mannion. 2000. "Organisational Culture and

- Quality of Health Care.” *Quality in Health Care* 9(2):111–19.
- Deal, Terry and Allen Kennedy. 2000. *Corporate Cultures: The Rites and Rituals of Corporate Life*. New York: Basic Books.
- Dempsey, Christina and Mary Jo Assi. 2018. “The Impact of Nurse Engagement on Quality, Safety, and the Experience of Care.” *Nursing Administration Quarterly* 42(3):278–83.
- Doing, Park. 2011. “Tacit Knowledge: Discovery by or Topic for Science Studies?” *Social Studies of Science* 41(2):301–6.
- Donabedian, Avedis. 1965. “Evaluating the Quality of Medical Care.” *Milbank Memorial Fund Quarterly* 44(3, Part 2: Health Services Research).
- Donabedian, Avedis. 2005. “Evaluating the Quality of Medical Care.” *Milbank Quarterly* 83(4):691–729.
- Durkheim, Emile. 1984. *The Division of Labor in Society*. London: Macmillon Publishers Inc.
- El-Jardali, Fadi and Racha Fadlallah. 2017. “A Review of National Policies and Strategies to Improve Quality of Health Care and Patient Safety: A Case Study from Lebanon and Jordan.” *BMC Health Services Research* 17(1):568.
- Elixhauser, Anne, Claudia Steiner, and Irene Fraser. 2003. “Volume Thresholds and Hospital Characteristics in the United States.” *Health Affairs* 22(2):167–77.
- Elmqvist, Karl O., Maxime Tj Rigaudy, and Jasper P. Vink. 2016. “Creating a No-Blame Culture through Medical Education: A UK Perspective Dear Editor.” *Journal of Multidisciplinary Healthcare* 6(9):345–346.
- Espeland, Wendy Nelson and Michael Sauder. 2016. *Engines of Anxiety: Academic Rankings,*

- Reputation, and Accountability*. New York: Russell Sage Foundation.
- Espeland, Wendy Nelson and Mitchell L. Stevens. 1998. "Commensuration as a Social Process." *Annual Review of Sociology* 24(1):313–43.
- Espeland, Wendy and Berit Irene Vannebo. 2007. "Accountability, Quantification, and Law." *Annual Review of Law and Social Science* (3):21–43.
- Eubanks, Virginia. 2017. *Automating Inequality: How High-Tech Tools Profile, Police, and Punish the Poor*. New York: St. Martins Press.
- Fasoli, DiJon R. 2010. "The Culture of Nursing Engagement." *Nursing Administration Quarterly* 34(1):18–29.
- Faust, Jeremy S. and Scott D. Weingart. 2017. "The Past, Present, and Future of the Centers for Medicare and Medicaid Services Quality Measure SEP-1: The Early Management Bundle for Severe Sepsis/Septic Shock." *Emergency Medicine Clinics of North America* 35(1):219–31.
- Field, Mary, Krista Fong, and Carol Shade. 2018. "Use of Electronic Visibility Boards to Improve Patient Care Quality, Safety, and Flow on Inpatient Pediatric Acute Care Units." *Journal of Pediatric Nursing* 41:69–76.
- Fine, Michelle. 1994. "Working the Hyphens: Reinventing the Self and Other in Qualitative Research." Pp. 70–82 in *Handbook of qualitative research*, edited by N. K. Denzin and Y. S. Lincoln. New York: Sage Publications Inc.
- Fleischman, Ross J., Amy H. Kaji, Vivian Mae Diaz, Kimberly McKenzie, Patricia Soltero, Timothy L. Van Natta, and Brad Spellberg. 2015. "A Simple Intervention to Improve

- Hospital Flow from Emergency Department to Inpatient Units.” *JAMA Internal Medicine* 175(2):289–90.
- Flemons, W. Ward, Thomas E. Feasby, and Brace Wright. 2011. “Building a Safety and Quality Culture in Healthcare: Where It Starts.” *Healthcare Papers* 11(3):41–47.
- Fosket, Jennifer Ruth. 2014. “Situating Knowledge.” Pp. 95–114 in *Grounded Theory and Situational Analysis: Essentials and Exemplars*, edited by A. E. Clarke and K. Charmaz. London: Sage Publications.
- Foucault, Michel. 1972. *Archaeology of Knowledge*. New York: Pantheon.
- Foucault, Michel. 1978. *The History of Sexuality: An Introduction, Volume I*. edited by R. Hurley. New York: Vintage Books.
- Foucault, Michel. 1995. *Discipline and Punish*. New York: Vintage Books.
- Frankel, A., F. Federico, and J. Lenoci-Edwards. 2017. *A Framework for Safe, Reliable, and Effective Care, White Paper*. Cambridge, MA.
- Freidson, Eliot. 1988. *Profession of Medicine A STUDY OF THE SOCIOLOGY OF APPLIED KNOWLEDGE*. 2nd ed. Chicago: University of Chicago Press.
- Gandhi, Tejal K., Derek Feeley, and Dan Schummers. 2020. “Zero Harm in Health Care.” *NEJM Catalyst* 1(2).
- Gardner, RL, E. Cooper, J. Haskell, DA Harris, S. Poplau, PJ Kroth, and M. Linzer. 2019. “Physician Stress and Burnout: The Impact of Health Information Technology.” *Journal of American Medical Information Association* 26(2):106–14.
- Gaynor, Martin, Farzad Mostashari, and Paul B. Ginsburg. 2017. “Making Health Care Markets

- Work.” *JAMA* 317(13):1313.
- Gilman, Matlin, Jason M. Hockenberry, E. Kathleen Adams, Arnold S. Milstein, Ira B. Wilson, and Edmund R. Becker. 2015. “The Financial Effect of Value-Based Purchasing and the Hospital Readmissions Reduction Program on Safety-Net Hospitals in 2014: A Cohort Study.” *Annals of Internal Medicine* 163(6):427–36.
- Ginsburg, Paul B. and Kavita K. Patel. 2017. “Physician Payment Reform — Progress to Date.” *New England Journal of Medicine* 377(3):285–92.
- Gleeson, Helen, Ana Calderon, Viren Swami, Jessica Deighton, Miranda Wolpert, and Julian Edbrooke-Childs. 2016. “Systematic Review of Approaches to Using Patient Experience Data for Quality Improvement in Healthcare Settings.” *BMJ Open* 6(8):e011907.
- Greenfield, Adam. 2017. “Radical Technologies: The Design of Everyday Life.” London: Verso Books.
- Grosios, Konstantina, Peter B. Gahan, and Jane Burbidge. 2010. “Overview of Healthcare in the UK.” *EPMA Journal* 1(4):529–34.
- Hall, Randolph. 2013. *Patient Flow: Reducing Delay in Healthcare Delivery*. 2nd ed. edited by R. Hall. Los Angeles: Springer.
- Healthcare IT News. 2012. “TeleTracking Unveils Enhanced Software for Hospital Real-Time Capacity Management | Healthcare IT News.” *Healthcare IT News*, July 13.
- Henke, Rachel Mosher, Zeynal Karaca, Paige Jackson, William D. Marder, and Herbert S. Wong. 2017. “Discharge Planning and Hospital Readmissions.” *Medical Care Research and Review* 74(3):345–68.

- Hoff, Timothy. 2011. “Deskilling and Adaptation among Primary Care Physicians Using Two Work Innovations.” *Health Care Management Review* 36(4):338–48.
- Hung, Dorothy Y., Michael I. Harrison, Quan Truong, and Xue Du. 2018. “Experiences of Primary Care Physicians and Staff Following Lean Workflow Redesign.” *BMC Health Services Research* 18(1):1–8.
- IHI. 2019a. *Better Patient Flow Means Breaking Down the Silos*.
- IHI. 2019b. “Develop a Culture of Safety | IHI - Institute for Healthcare Improvement.” *Institute for Healthcare Improvement*. Retrieved April 9, 2020 (<http://www.ihi.org/resources/Pages/Changes/DevelopaCultureofSafety.aspx>).
- Ingelsson, Pernilla, Ingela Bäckström, and Kristen Snyder. 2018. “Strengthening Quality Culture in Private Sector and Health Care: What Can We Learn from Applying Soft Measures?” *Leadership in Health Services* 31(3):276–92.
- Institute of Medicine. 1999. “To Err Is Human: Building a Safer Health System (Report Brief).” *Institute of Medicine* (November):1–8.
- Institute of Medicine. 2001. *Crossing the Quality Chasm: A New Health System for He*.
- Introna, Lucas D. 2016. “Algorithms, Governance, and Governmentality: On Governing Academic Writing.” *Science, Technology, & Human Values* 41(1):17–49.
- Ishak, Waguih, Rose Nikraves, Sara Lederer, Robert Perry, Dotun Ogunyemi, and Carol Bernstein. 2013. “Burnout in Medical Students: A Systematic Review.” *Clinical Teacher* 10(4):242–45.
- Jack, Eric P. and Thomas L. Powers. 2009. “Volume Flexible Strategies in Health Services: A

- Research Framework.” *Production and Operations Management* 13(3):230–44.
- Jacobs, Rowena, Russell Mannion, Huw T. O. Davies, Stephen Harrison, Fred Konteh, and Kieran Walshe. 2013. “The Relationship between Organizational Culture and Performance in Acute Hospitals.” *Social Science & Medicine* 76:115–25.
- Jamshidi, Ensiyeh, Saharnaz Sima Nedjat, Saharnaz Sima Nedjat, Sima Nikooee, Narges Rostamigooran, and Reza Majdzadeh. 2018. “How to Utilize Tacit Knowledge in Health Organizations: An Iranian Perspective.” *Medical Journal of the Islamic Republic of Iran* 678–85.
- Jarvis, Paul Richard Edwin. 2016. “Improving Emergency Department Patient Flow.” *Clinical and Experimental Emergency Medicine* 3(2):63–68.
- Jenkins, Tania. 2020. *Doctors’ Orders: The Making of Status Hierarchies in an Elite Profession*. New York: Columbia University Press.
- Jenkins, Tania M. 2018. “Dual Autonomies, Divergent Approaches: How Stratification in Medical Education Shapes Approaches to Patient Care.” *Journal of Health and Social Behavior* 59(2):268–82.
- Joosten, Tom, Inge Bongers, and Richard Janssen. 2009. “Application of Lean Thinking to Health Care: Issues and Observations.” *International Journal for Quality in Health Care* 21(5):341–47.
- Kalantari, Annahieta, Haney Mallemat, and Scott D. Weingart. 2017. “Sepsis Definitions: The Search for Gold and What CMS Got Wrong.” *Western Journal of Emergency Medicine* 18(5).

- KaufmanHall. 2018. *2017 in Review: The Year M&As Shook the Healthcare Landscape*.
- Khalid, Umair and Anita Deswal. 2018. "Observation Versus Inpatient Stay for Heart Failure: Is It Semantics?" *Journal of the American Heart Association* 7(3).
- Kizer, K. W. 2001. "Establishing Health Care Performance Standards in an Era of Consumerism." *Journal of the American Medical Association* 286(10):1213–17.
- Knopes, Julia. 2020a. "USMLE Step 1 Goes Pass/Fail: What Happens Now for U.S. Medical Students? ." *Bioethics.Net*.
- Knopes, Julia. 2020b. "Yields and Rabbit Holes: Medical Students' Typologies of Sufficient Knowledge." *Medical Anthropology: Cross Cultural Studies in Health and Illness* 39(3):255–68.
- Kothari, Anita R., Julia J. Bickford, Nancy Edwards, Maureen J. Dobbins, and Mechthild Meyer. 2011. "Uncovering Tacit Knowledge: A Pilot Study to Broaden the Concept of Knowledge in Knowledge Translation." *BMC Health Services Research* 11.
- LaCalle, Eduardo and Elaine Rabin. 2010. "Frequent Users of Emergency Departments: The Myths, the Data, and the Policy Implications." *Annals of Emergency Medicine* 56(1):42–48.
- Latour, Bruno. 1987. *Science in Action: How to Follow Scientists and Engineers through Society*. Cambridge, MA: Harvard University Press.
- Latour, Bruno. 2005. *Reassembling the Social: An Introduction to Actor-Network-Theory*. Oxford. Oxford University Press.
- Lawrence, Christopher. 1985. "Incommunicable Knowledge: Science, Technology and the Clinical Art in Britain 1850-1914." *Journal of Contemporary History* 20(4):503–20.

- Lazar, Eliot J., Peter Fleischut, and Brian K. Regan. 2013. "Quality Measurement in Healthcare." *Annual Review of Medicine* 64(1):485–96.
- Lemak, Christy Harris, Tammie A. Nahra, Genna R. Cohen, Natalie D. Erb, Michael L. Paustian, David Share, and Richard A. Hirth. 2015. "Michigan's Fee-For-Value Physician Incentive Program Reduces Spending And Improves Quality In Primary Care Primary Care." *Health Affairs* 34:645–52.
- Leslie, Myles, Elise Paradis, Michael A. Gropper, Simon Kitto, Scott Reeves, and Peter Pronovost. 2017. "An Ethnographic Study of Health Information Technology Use in Three Intensive Care Units." *Health Services Research* 52(4):1330–48.
- Light, Donald. 2010. "Health-Care Professions, Markets, and Countervailing Powers." Pp. 270–89 in *Handbook of Medical Sociology*, edited by S. Bird, C., Conrad, P., Fremont, A. M., Timmermans. Nashville, TN.
- Lin, Sunny C., John M. Hollingsworth, and Julia Adler-Milstein. 2019. "Alternative Payment Models and Hospital Engagement in Health Information Exchange HHS Public Access." *Am J Manag Care* 25(1):1–6.
- Lingsma, Hester F., Alex Bottle, Steve Middleton, Job Kievit, Ewout W. Steyerberg, and Perla J. Marang-Van De Mheen. 2018. "Evaluation of Hospital Outcomes: The Relation between Length-of-Stay, Readmission, and Mortality in a Large International Administrative Database." *BMC Health Services Research* 18(1).
- Link, B. G. and J. Phelan. 1995. "Social Conditions as Fundamental Causes of Disease." *Journal of Health and Social Behavior Spec* No:80–94.
- Litvak, Eugene. 2018. "What Is Patient Flow? ." *New England Journal of Medicine, Catalyst*

4(1).

Liu, Vincent X., Vikram Fielding-Singh, John D. Greene, Jennifer M. Baker, Theodore J.

Iwashyna, Jay Bhattacharya, and Gabriel J. Escobar. 2017. “The Timing of Early Antibiotics and Hospital Mortality in Sepsis.” *American Journal of Respiratory and Critical Care Medicine* 196(7):856–63.

Locke, Charles, Ann M. Sheehy, Amy Deutschendorf, Stephanie Mackowiak, Bradley E.

Flansbaum, and Brent Petty. 2015. “Changes to Inpatient versus Outpatient Hospitalization: Medicare’s 2-Midnight Rule.” *Journal of Hospital Medicine* 10(3):194–201.

Lu, Jingyan and Rumme Shaw. 2016. “Will Medical Technology Deskill Doctors?”

International Education Studies 9(7):130.

Lynch, Michael. 2013. “At the Margins of Tacit Knowledge.” *Philosophia Scientiæ* 17(3):55–73.

MacLean, Catherine H., Eve A. Kerr, and Amir Qaseem. 2018. “Time Out — Charting a Path for

Improving Performance Measurement.” *New England Journal of Medicine* 378(19):1757–61.

Mamo, Laura and Jennifer Ruth Fosket. 2009. “Scripting the Body: Pharmaceuticals and the

(Re)Making of Menstruation.” *Signs* 34(4):925–49.

Mannion, Russell and Huw Davies. 2018. “Understanding Organisational Culture for Healthcare

Quality Improvement.” *BMJ (Online)* 363(November):1–4.

Marc Overhage, J. and David McCallie. 2020. “Physician Time Spent Using the Electronic

Health Record during Outpatient Encounters a Descriptive Study.” *Annals of Internal Medicine* 172(3):169–74.

- Marjoua, Youssra and Kevin J. Bozic. 2012. "Brief History of Quality Movement in US Healthcare." *Current Reviews in Musculoskeletal Medicine* 5(4):265–73.
- Martin, Graham P., Myles Leslie, Joel Minion, Janet Willars, and Mary Dixon-Woods. 2013. "Between Surveillance and Subjectification: Professionals and the Governance of Quality and Patient Safety in English Hospitals." *Social Science and Medicine* 99:80–88.
- Martin, Graham P., Lorna McKee, and Mary Dixon-Woods. 2015. "Beyond Metrics? Utilizing 'soft Intelligence' for Healthcare Quality and Safety." *Social Science and Medicine* 142:19–26.
- Marx, Karl and Friedrich Engels. 1978. *The Marx Engels Reader, Second Edition*. 2nd ed. edited by R. C. Tucker. New York: W. W. Norton & Company.
- Mattu, Amal. 2017. "Severe Sepsis Care in the Emergency Department." *Emergency Medicine Clinics of North America* 35(1):xv–xvi.
- Maughan, Brandon C., Daver C. Kahvecioglu, Grecia Marrufo, Gina M. Gerding, Syvart Dennen, Jaclyn K. Marshall, Daniel M. Cooper, Colleen M. Kummet, and Laura A. Dummit. 2019. "Medicare's Bundled Payments for Care Improvement Initiative Maintained Quality of Care for Vulnerable Patients." *Health Affairs* 38(4):561–68.
- May, Carl and Tracy Finch. 2009. "Implementing, Embedding, and Integrating Practices: An Outline of Normalization Process Theory." *British Sociological Association* 4(3).
- McGlynn, Elizabeth A., Eric C. Schneider, and Eve A. Kerr. 2014. "Reimagining Quality Measurement." *New England Journal of Medicine* 371(23):2150–53.
- Mchugh, Megan and Kevin Van Dyke. 2011. "Improving Patient Flow Department Crowding :

- And Reducing Emergency Department Crowding : A Guide for Hospitals.” *Improving Patient Flow and Reducing Emergency Department Crowding* 8.
- McKinlay, J. B. and J. D. Stoeckle. 1988. “Corporatization and the Social Transformation of Doctoring.” *International Journal of Health Services* 18(2):191–205.
- McKinlay, John and Lisa Marceau. 2008. “When There Is No Doctor: Reasons for the Disappearance of Primary Care Physicians in the US during the Early 21st Century.” *Bone* 67(10):1481–91.
- Medicare.gov. 2019. “30-Day Death and Readmission Measures Data.” *Hospital Compare*. Retrieved April 22, 2020 (<https://www.medicare.gov/hospitalcompare/Data/30-day-measures.html>).
- Medicare.gov. 2020. “Find and Compare Information about Hospitals | Hospital Compare.” Retrieved April 28, 2020 (<https://www.medicare.gov/hospitalcompare/search.html?>).
- Miller, Harold D. 2009. “From Volume to Value: Better Ways to Pay for Health Care.” *Health Affairs* 28(5):1418–28.
- Miller, Peter. 2001. “Governing by Numbers: Why Calculative Practices Matter.” *Social Research* 68(2):379–96.
- Monk, Ellis P. 2015. “The Cost of Color: Skin Color, Discrimination, and Health among African-Americans.” *American Journal of Sociology* 121(2):396–444.
- Morley, Claire, Maria Unwin, Gregory M. Peterson, Jim Stankovich, and Leigh Kinsman. 2018. “Emergency Department Crowding: A Systematic Review of Causes, Consequences and Solutions.” *PLoS ONE* 13(8).

- Morton, Melinda J., David L. Schriger, and Tyler W. Barrett. 2012. "Preparing Your Emergency Department for the New CMS Metrics: Collecting and Comparing the Data." *YMEM* 59:549–55.
- Muller, Jerry Z. 2018. *The Tyranny of Metrics*. Princeton, NJ: Princeton University Press.
- NEJM Catalyst. 2018. "Healthcare Big Data and the Promise of Value-Based Care ." *Catalyst Carryover* 4(1).
- NEJM Catalyst. 2019. "About NEJM Catalyst." *Catalyst*. Retrieved April 9, 2020 (<https://catalyst.nejm.org/about?query=nejmgrouppnav>).
- New, P. W., K. E. McDougall, and C. P. R. Scroggie. 2016. "Improving Discharge Planning Communication between Hospitals and Patients." *Internal Medicine Journal* 46(1):57–62.
- van der Niet, A. G. and A. Bleakley. 2020. "Where Medical Education Meets Artificial Intelligence: 'Does Technology Care?'" *Medical Education*.
- Nowak, Nancy, Holly Rimmash, Ann Kirby, and Chad Kellogg. 2012. "Right Care, Right Time, Right Place, Every Time: Intermountain Healthcare Implemented a New Patient Flow Process, Improving Quality and Efficiency and Increasing Bed Capacity." *Healthcare Financial Management* 66(4).
- Numerato, Dino, Domenico Salvatore, and Giovanni Fattore. 2012. "The Impact of Management on Medical Professionalism: A Review." *Sociology of Health and Illness* 34(4):626–44.
- NYSDOH. 2019. "The New York Patient Occurrence Reporting and Tracking System (NYPORTS)." Retrieved April 9, 2020 (<https://www.health.ny.gov/facilities/hospital/nyports/>).

- Obermeyer, Ziad and Sendhil Mullainathan. 2019. “Dissecting Racial Bias in an Algorithm That Guides Health Decisions for 70 Million People.”
- Obermeyer, Ziad, Brian Powers, Christine Vogeli, and Sendhil Mullainathan. 2019. “Algorithmic Bias In Health Care: A Path Forward.” *Health Affairs* November.
- Oshinsky, David. 2016. *Bellevue: Three Centuries of Medicine and Mayhem at America’s Most Storied Hospital*. New York: Doubleday.
- Patel, Hemali, Essey Yirdaw, Amy Yu, Lisa Slater, Katharine Perica, Read G. Pierce, Connie Amaro, and Christine D. Jones. 2019. “Improving Early Discharge Using a Team-Based Structure for Discharge Multidisciplinary Rounds.” *Professional Case Management* 24(2):83–89.
- Perkins, Jack and Michael E. Winters. 2017. “An Introduction to the Most Complex Disease in Emergency Medicine.” *Emergency Medicine Clinics of North America* 35(1):xvii–xviii.
- Perleth, Matthias, Elke Jakubowski, and Reinhard Busse. 2001. “What Is ‘best Practice’ in Health Care? State of the Art and Perspectives in Improving the Effectiveness and Efficiency of the European Health Care Systems.” *Health Policy* 56(3):235–50.
- Perman, Sarah M., Munish Goyal, and David F. Gaieski. 2012. “Initial Emergency Department Diagnosis and Management of Adult Patients with Severe Sepsis and Septic Shock.” *Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine* 20:41.
- Pestotnik, Stan. 2019. “Safety Culture in Healthcare: A 7-Step Framework.” *Health Catalyst*. Retrieved March 8, 2020 (<https://www.healthcatalyst.com/insights/safety-culture-healthcare-7-step-framework>).

- Peterson, Timothy A., Steven J. Bernstein, and David A. Spahlinger. 2016. "Population Health: A New Paradigm for Medicine." *The American Journal of the Medical Sciences* 351(1):26–32.
- Polanyi, Michael. 1966. *The Tacit Dimension*. Chicago: University of Chicago Press.
- Porter, Theodore. 1995. *Trust in Numbers: The Pursuit of Objectivity in Science and Public Life*. Princeton, NJ: Princeton University Press.
- Pulia, Michael S., Robert Redwood, and Brian Sharp. 2017. "Antimicrobial Stewardship in the Management of Sepsis." *Emergency Medicine Clinics of North America* 35(1):199–217.
- Quinn, Richard. 2016. "Potential Dangers of Using Technology in Healthcare ." *The Hospitalist* 2016(3).
- Rab Alam, Sonia Yasmeena. 2016. "Promissory Failures: How Consumer Health Technologies Build Value, Infrastructures, and the Future in the Present." University of California, San Francisco.
- Ree, Eline and Siri Wiig. 2019. "Linking Transformational Leadership, Patient Safety Culture and Work Engagement in Home Care Services." 256–64.
- Rivers, Emanuel, Bryant Nguyen, Suzanne Havstad, Julie Ressler, Alexandria Muzzin, Bernhard Knoblich, Edward Peterson, and Michael Tomlanovich. 2001. "Early Goal-Directed Therapy in the Treatment of Severe Sepsis and Septic Shock." *New England Journal of Medicine* 345(19):1368–77.
- Rose, Nikolas. 2007. *The Politics of Life Itself: Biomedicine, Power, and Subjectivity in the Twenty-First Century*. Princeton, NJ: Princeton University Press.

- Rottenburg, Richard, Sally Engle Merry, Sung-Joon Park, and Johanna Mugler. 2015. *The World of Indicators: The Making of Governmental Knowledge Through Quantification*. Cambridge, UK: Cambridge University Press.
- Rubin, Rita. 2018. "How Value-Based Medicare Payments Exacerbate Health Care Disparities." *JAMA - Journal of the American Medical Association* 319(10):968–70.
- Sadurni, Luis Ferre and Jesse McKinley. 2020. "N.Y. Hospitals Face \$400 Million in Cuts Even as Virus Battle Rages." *The New York Times*.
- Samora, Julie Balch, Kevin G. Shea, Antonia F. Chen, Philip Turner, and Steven L. Frick. 2019. "Quality Improvement and Patient Safety." *The Journal of Bone and Joint Surgery* 1.
- Saver, Barry G., Stephen A. Martin, Ronald N. Adler, Lucy M. Candib, Konstantinos E. Deligiannidis, Jeremy Golding, Daniel J. Mullin, Michele Roberts, and Stefan Topolski. 2015. "Care That Matters: Quality Measurement and Health Care." *PLoS Medicine* 12(11).
- Schein, Edgar. 2010. *Organizational Culture and Leadership*. 4th ed. New Jersey: Jossey-Bass.
- Schwartz, Michael. 2020. "One Rich N.Y. Hospital Got Warren Buffett's Help. This One Got Duct Tape." *The New York Times*, April 26.
- Seymour, Christopher W., Foster Gesten, Hallie C. Prescott, Marcus E. Friedrich, Theodore J. Iwashyna, Gary S. Phillips, Stanley Lemeshow, Tiffany Osborn, Kathleen M. Terry, and Mitchell M. Levy. 2017. "Time to Treatment and Mortality during Mandated Emergency Care for Sepsis." *The New England Journal of Medicine* 376(23):2235–44.
- Shim, Janet. 2014. *Heart-Sick: The Politics of Risk, Inequality, and Heart Disease*. New York: NYU Press.

- Shore, Cris and Susan Wright. 2015. "Audit Culture Revisited Rankings, Ratings, and the Reassembling of Society." *Current Anthropology* 56(3):421–44.
- Singh, Gopal K. and Barry A. Miller. 2004. "Health, Life Expectancy, and Mortality Patterns among Immigrant Populations in the United States." *Canadian Journal of Public Health* 95(3).
- Song, Zirui, Yunan Ji, Dana G. Safran, and Michael E. Chernew. 2019. "Health Care Spending, Utilization, and Quality 8 Years into Global Payment." *New England Journal of Medicine* 381(3):252–63.
- Song, Zirui, Dana Gelb Safran, Bruce E. Landon, Yulei He, Randall P. Ellis, Robert E. Mechanic, Matthew P. Day, and Michael E. Chernew. 2011. "Health Care Spending and Quality in Year 1 of the Alternative Quality Contract." *New England Journal of Medicine* 365(10):909–18.
- Starr, Paul. 1982. *The Social Transformation of American Medicine: The Rise of a Sovereign Profession and the Making of a Vast Industry*. 2nd Editio. United States: Paul Starr.
- Sweet, Victoria. 2012. *God's Hotel: A Doctor, a Hospital, and a Pilgrimage to the Heart of Medicine*. edited by Riverhead Books. New York.
- Swensen, Stephen J. and Namita Seth Mohta. 2019. "Organizational Culture Is the Key to Better Health Care." *NEJM Catalyst* (April).
- TallBear, Kim. 2014. "Standing With and Speaking as Faith: A Feminist-Indigenous Approach to Inquiry." *Journal of Research Practice* 10(2):Article N17.
- TeleTracking. 2020. "About TeleTracking." *TeleTracking.Com*. Retrieved April 14, 2020

(<https://www.teletracking.com/about>).

The Joint Commission. 2017. *The Essential Role of Leadership in Developing a Safety Culture*.

The Joint Commission. 2018. “Joint Commission Resources Publishes New Book on Patient Flow.” *The Joint Commission Resources*.

Timmermans, Stefan and Marc Berg. 2003. “The Practice of Medical Technology.” *Sociology of Health & Illness* 25(3):97–114.

Timmermans, Stefan and Steven Epstein. 2010. “A World of Standards but Not a Standard World: Toward a Sociology of Standards and Standardization.” *Annual Review of Sociology* 36(1):69–89.

Timmermans, Stefan and Hyeyoung Oh. 2010. “The Continued Social Transformation of the Medical Profession.” *Journal of Health and Social Behavior* 51(1_suppl):S94–106.

Trzeciak, Stephen and E. P. Rivers. 2003. “Emergency Department Overcrowding in the United States: An Emerging Threat to Patient Safety and Public Health.” *Emergency Medicine Journal* 20(5):402–5.

Turner, Bryan. 1997. “From Governmentality to Risk: Some Reflections on Foucault’s Contribution to Medical Sociology.” Pp. ix–xxi in *Foucault, Health and Medicine*, edited by A. Petersen and R. Bunton. London: Routledge.

U.S. News. 2020. “Best Hospitals | U.S. News Hospital Rankings and Ratings | US News Health.” *U.S. News Hospital Rankings and Ratings | US News Health*. Retrieved April 28, 2020 (<https://health.usnews.com/best-hospitals>).

Underman, Kelly. 2020. *Feeling Medicine : How the Pelvic Exam Shapes Medical Training*.

New York: NYU Press.

Uttley, Lois, Fred Hyde, Patricia HasBrouck, and Emma Chesson. 2018. *Empowering New York Consumers in an Era of Hospital Consolidation*.

Venkatesh, Arjun K., Todd Slesinger, Jessica Whittle, Tiffany Osborn, Emily Aaronson, Craig Rothenberg, Nalani Tarrant, Pawan Goyal, Donald M. Yealy, and Jeremiah D. Schuur. 2018. "Preliminary Performance on the New CMS Sepsis-1 National Quality Measure: Early Insights From the Emergency Quality Network (E-QUAL)." *Annals of Emergency Medicine* 71(1):10-15.e1.

Walkey, Allan J. and Peter K. Lindenauer. 2017. "Keeping It Simple in Sepsis Measures." *Journal of Hospital Medicine* 12(12):1019–21.

Weaver, Sallie J., Lisa H. Lubomksi, Renee F. Wilson, Elizabeth R. Pfoh, Kathryn A. Martinez, and Sydney M. Dy. 2013. "Promoting a Culture of Safety as a Patient Safety Strategy: A Systematic Review HHS Public Access." *Ann Intern Med* 158(2):369–74.

Weber, Max. 1922. *Economy and Society*. Vol. 2 vols. Berkeley, CA: University of California Press.

Williams, David R. and Chiquita Collins. 1995. "US Socioeconomic and Racial Differences in Health: Patterns and Explanations." *Annual Review of Sociology* 21(1):349–86.

Williams, David R., Selina A. Mohammed, Jacinta Leavell, and Chiquita Collins. 2010. "Race, Socioeconomic Status, and Health: Complexities, Ongoing Challenges, and Research Opportunities." *Annals of the New York Academy of Sciences* 1186:69–101.

Winslow, Rosalie. 2020. "Failing the Metric but Saving Lives: The Protocolization of Sepsis

- Treatment through Quality Measurement.” *Social Science and Medicine* 253:1–9.
- Yoo, K. H. H., Y. A. A. Zhang, and E. K. K. Yun. 2019. “Registered Nurses (RNs)’ Knowledge Sharing and Decision-Making: The Mediating Role of Organizational Trust.” *International Nursing Review* 66(2):234–41.
- Zibrowski, Elaine, Lisa Shepherd, Kamran Sedig, Richard Booth, and Candace Gibson. 2018. “Easier and Faster Is Not Always Better: Grounded Theory of the Impact of Large-Scale System Transformation on the Clinical Work of Emergency Medicine Nurses and Physicians.” *JMIR Human Factors* 5(4):e11013.
- Zola, Irving Kenneth. 1972. “Medicine as an Institution of Social Control.” *The Sociological Review* 20(4):487–504.
- Zuboff, Shoshana. 2019. *The Age of Surveillance Capitalism: The Fight for Freedom and Power in the Age of Surveillance Capitalism*. New York: Public Affairs New York.

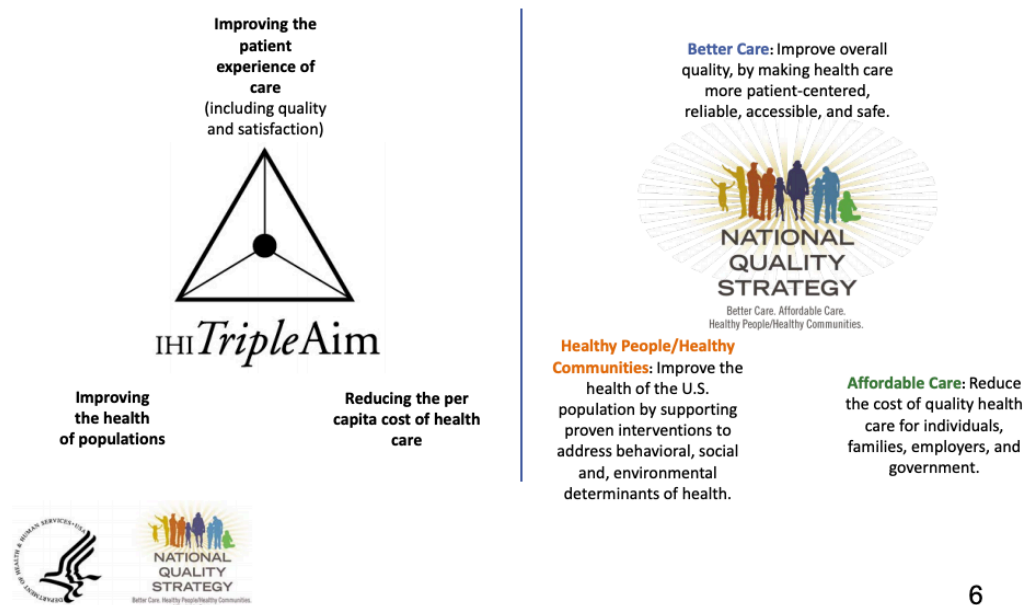
APPENDICES

Appendix A: National Quality Strategy (AHRQ 2017:4–5)



7

The IHI Triple Aim and NQS Three Aims



6

Appendix B: CMS Specifications Manual for National Hospital Inpatient Quality Measures for SEP-1 – Sepsis Bundle Project (CMS 2018:1–8)

Last Updated: Version 5.5

SEPSIS BUNDLE PROJECT (SEP) NATIONAL HOSPITAL INPATIENT QUALITY MEASURES

SEP Measure Set Table

Set Measure ID #	Measure Short Name
SEP-1	Early Management Bundle, Severe Sepsis/Septic Shock

Specifications Manual for National Hospital Inpatient Quality Measures
Discharges 01-01-19 (1Q19) through 06-30-19 (2Q19)

SEP-1

SEP DATA ELEMENT LIST

General Data Elements Table

Name	Collected For:
Admission Date	All Records
Birthdate	All Records
Discharge Date	All Records
First Name	All Records
Hispanic Ethnicity	All Records
ICD-10-CM Other Diagnosis Codes	All Records
ICD-10-CM Other Procedure Codes	All Records
ICD-10-CM Other Procedure Dates	All Records
ICD-10-CM Principal Diagnosis Code	All Records
ICD-10-CM Principal Procedure Code	All Records
ICD-10-CM Principal Procedure Date	All Records
Last Name	All Records
Patient Identifier	All Records
Payment Source	All Records
Physician 1	Optional for All Records
Physician 2	Optional for All Records
Postal Code	All Records
Race	All Records
Sample	Used in transmission of the Joint Commission's aggregate data file and the Hospital Clinical Data file
Sex	All Records

Algorithm Output Data Element Table

Name	Collected For:
Measure Category Assignment	Used in the calculation of the Joint Commission's aggregate data and in the transmission of the Hospital Clinical Data file

Specifications Manual for National Hospital Inpatient Quality Measures
Discharges 01-01-19 (1Q19) through 06-30-19 (2Q19)

SEP-2

SEP DATA ELEMENT LIST

SEP Data Elements Table

Name	Collected For:
Administrative Contraindication to Care, Septic Shock	SEP-1
Administrative Contraindication to Care, Severe Sepsis	SEP-1
Blood Culture Collection	SEP-1
Blood Culture Collection Acceptable Delay	SEP-1
Blood Culture Collection Date	SEP-1
Blood Culture Collection Time	SEP-1
Broad Spectrum or Other Antibiotic Administration	SEP-1
Broad Spectrum or Other Antibiotic Administration Date	SEP-1
Broad Spectrum or Other Antibiotic Administration Selection	SEP-1
Broad Spectrum or Other Antibiotic Administration Time	SEP-1
Clinical Trial	SEP-1
Crystalloid Fluid Administration	SEP-1
Crystalloid Fluid Administration Date	SEP-1
Crystalloid Fluid Administration Time	SEP-1
Directive for Comfort Care or Palliative Care, Septic Shock	SEP-1
Directive for Comfort Care or Palliative Care, Severe Sepsis	SEP-1
Discharge Disposition	SEP-1
Discharge Time	SEP-1
Initial Hypotension	SEP-1
Initial Hypotension Date	SEP-1
Initial Hypotension Time	SEP-1
Initial Lactate Level Collection	SEP-1
Initial Lactate Level Date	SEP-1
Initial Lactate Level Result	SEP-1
Initial Lactate Level Time	SEP-1
Persistent Hypotension	SEP-1
Repeat Lactate Level Collection	SEP-1
Repeat Lactate Level Date	SEP-1
Repeat Lactate Level Time	SEP-1
Repeat Volume Status and Tissue Perfusion Assessment Performed	SEP-1
Repeat Volume Status and Tissue Perfusion Assessment Performed Date	SEP-1
Repeat Volume Status and Tissue Perfusion Assessment Performed Time	SEP-1
Septic Shock Present	SEP-1
Septic Shock Presentation Date	SEP-1
Septic Shock Presentation Time	SEP-1
Severe Sepsis Present	SEP-1
Severe Sepsis Presentation Date	SEP-1
Severe Sepsis Presentation Time	SEP-1
Transfer From Another Hospital or ASC	SEP-1
Vasopressor Administration	SEP-1

Specifications Manual for National Hospital Inpatient Quality Measures
Discharges 01-01-19 (1Q19) through 06-30-19 (2Q19)

SEP-3

SEP Data Elements Table

Name	Collected For:
Vasopressor Administration Date	SEP-1
Vasopressor Administration Time	SEP-1

Specifications Manual for National Hospital Inpatient Quality Measures
Discharges 01-01-19 (1Q19) through 06-30-19 (2Q19)

SEP-4

Appendix B cont.

Sepsis (SEP) Initial Patient Population

The population of the SEP measure set is identified using 5 data elements:

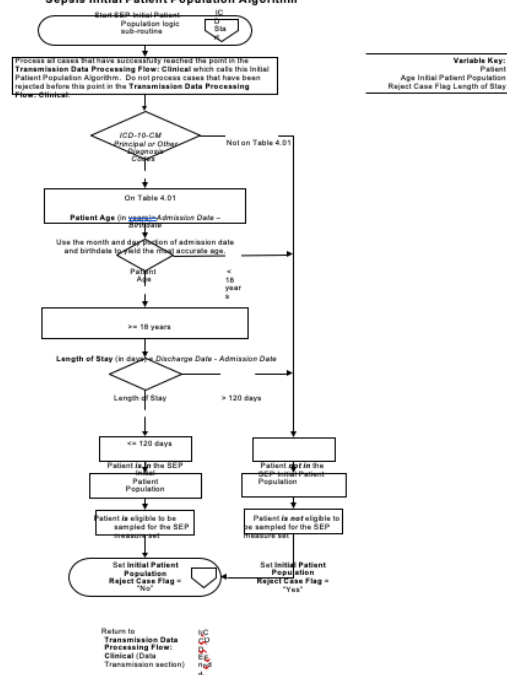
- ICD-10-CM Principal Diagnosis Code
- ICD-10-CM Other Diagnosis Codes
- Admission Date
- Birthdate
- Discharge Date

Patients admitted to the hospital for inpatient acute care with an ICD-10-CM Principal or Other Diagnosis Code for SEP as defined in Appendix A, Table 4.01, a Patient Age (Admission Date minus Birthdate) greater than or equal to 18 years, and a Length of Stay (Discharge Date minus Admission Date) less than or equal to 120 days are included in the SEP Initial Patient Population and are eligible to be sampled.

Specifications Manual for National Hospital Inpatient Quality Measures
Discharges 01-01-19 (1Q19) through 06-30-19 (2Q19)

SEP-5

Sepsis Initial Patient Population Algorithm



Specifications Manual for National Hospital Inpatient Quality Measures
Discharges 01-01-19 (1Q19) through 06-30-19 (2Q19)

SEP-6

Algorithm Narrative Sepsis (SEP) Initial Patient Population

Variable Key: Patient Age, Initial Patient Population Reject Case Flag, and Length of Stay

1. Start SEP Initial Patient Population logic sub-routine. Process all cases that have successfully reached the point in the Transmission Data Processing Flow: Clinical which calls this Initial Patient Population Algorithm. Do not process cases that have been rejected before this point in the Transmission Data Processing Flow: Clinical.
2. Check ICD-10-CM Principal or Other Diagnosis Codes
 - a. If the ICD-10-CM Principal or Other Diagnosis Codes is not on Table 4.01, the patient is not in the SEP Initial Patient Population and is not eligible to be sampled for the SEP measure set. Set the Initial Patient Population Reject Case Flag to equal Yes. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.
 - b. If the ICD-10-CM Principal or Other Diagnosis Codes is on Table 4.01, continue processing and proceed to the patient age calculation.
3. Calculate Patient Age. Patient Age, in years, is equal to the Admission Date minus the Birthdate. Use the month and day portion of admission date and birthdate to yield the most accurate age.
4. Check Patient Age
 - a. If the Patient Age is less than 18 years, the patient is not in the SEP Initial Patient Population and is not eligible to be sampled for the SEP measure set. Set the Initial Patient Population Reject Case Flag to equal Yes. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.
 - b. If the Patient Age is greater than or equal to 18 years, continue processing and proceed to Length of Stay Calculation.
5. Calculate the Length of Stay. Length of Stay, in days, is equal to the Discharge Date minus the Admission Date.
6. Check Length of Stay
 - a. If the Length of Stay is greater than 120 days, the patient is not in the SEP Initial Patient Population and is not eligible to be sampled for the SEP measure set. Set the Initial Patient Population Reject Case Flag to equal Yes. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.
 - b. If the Length of Stay is less than or equal to 120 days, the patient is in the SEP Initial Patient Population and is eligible to be sampled for the SEP measure set. Set Initial Patient Population Reject Case Flag to equal No. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.

Specifications Manual for National Hospital Inpatient Quality Measures
Discharges 01-01-19 (1Q19) through 06-30-19 (2Q19)

SEP-7

Sepsis Sample Size Requirements

Hospitals that choose to sample have the option of sampling quarterly or sampling monthly. A hospital may choose to use a larger sample size than is required. Hospitals whose Initial Patient Population size is less than the minimum number of cases per quarter/month cannot sample. Hospitals that have five or fewer sepsis discharges for the entire measure set (both Medicare and non-Medicare combined) in a quarter are not required, but are encouraged to submit sepsis patient level data to the CMS Clinical Warehouse.

Regardless of the option used, hospital samples must be monitored to ensure that sampling procedures consistently produce statistically valid and useful data. Due to exclusions, hospitals selecting sample cases MUST submit AT LEAST the minimum required sample size.

The following sample size tables for each option automatically build in the number of cases needed to obtain the required sample sizes. For information concerning how to perform sampling, refer to the Population and Sampling Specifications section in this manual.

Quarterly Sampling

Hospitals selecting sample cases for the sepsis measure must ensure that the population and quarterly sample size meets the following conditions:

Quarterly Sample Size
Based on Hospital's Initial Patient Population Size for the Sepsis Measure

Average Quarterly Initial Patient Population Size "N"	Minimum Required Sample Size "n"
1 - 301	60
151 - 300	20% of Initial Patient Population size
30 - 150	30
6 - 29	No sampling; 100% Initial Patient Population required
0 - 5	Submission of patient level data is encouraged but not required. If submission occurs, 1 - 5 cases of the Initial Patient Population may be submitted

Specifications Manual for National Hospital Inpatient Quality Measures
Discharges 01-01-19 (1Q19) through 06-30-19 (2Q19)

SEP-8

Hospital Survey on Patient Safety (Version 2.0)

Instructions

This survey asks for your opinions about patient safety issues, medical error, and event reporting in your hospital and will take about 10-15 minutes to complete. If a question does not apply to you or your hospital or you don't know the answer, please select "Does Not Apply or Don't Know."

- **"Patient safety"** is defined as the avoidance and prevention of patient injuries or adverse events resulting from the processes of healthcare delivery.
- A **"patient safety event"** is defined as any type of healthcare-related error, mistake, or incident, regardless of whether or not it results in patient harm.

Your Staff Position

1. What is your position in this hospital?

Select ONE answer.

Nursing

- ☐1 Advanced Practice Nurse (NP, CRNA, CNS, CNM)
- ☐2 Licensed Vocational Nurse (LVN), Licensed Practical Nurse (LPN)
- ☐3 Patient Care Aide, Hospital Aide, Nursing Assistant
- ☐4 Registered Nurse (RN)

Medical

- ☐5 Physician Assistant
- ☐6 Resident, Intern
- ☐7 Physician, Attending, Hospitalist

Other Clinical Position

- ☐8 Dietitian
- ☐9 Pharmacist, Pharmacy Technician
- ☐10 Physical, Occupational, or Speech Therapist
- ☐11 Psychologist
- ☐12 Respiratory Therapist
- ☐13 Social Worker
- ☐14 Technologist, Technician (e.g., EKG, Lab, Radiology)

Supervisor, Manager, Clinical Leader, Senior Leader

- ☐15 Supervisor, Manager, Department Manager, Clinical Leader, Administrator, Director
- ☐16 Senior Leader, Executive, C-Suite

Support

- ☐17 Facilities
- ☐18 Food Services
- ☐19 Housekeeping, Environmental Services
- ☐20 Information Technology, Health Information Services, Clinical Informatics
- ☐21 Security
- ☐22 Transporter
- ☐23 Unit Clerk, Secretary, Receptionist, Office Staff

Other

- ☐24 Other, please specify:

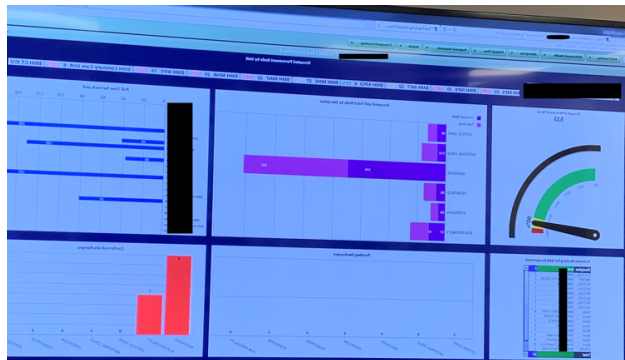
The left photograph shows a collection of patient safety posters. The most prominent one is titled "IMPACT" and features a large red circle with the number "3.22" inside, indicating a survey result. Below this, there's a section for "2017 Patient Safety Culture Survey Results" with a bar chart. Another section titled "2018 Pulse Survey - RHN" shows a bar chart with red bars. The posters are pinned to a wall with a patterned border.

The right photograph shows a poster titled "PATIENT SAFETY". It features a section for "National Patient Safety Goals: INPATIENT" with a checklist of goals. Below this, there's a section for "2018 Hospital National Patient Safety Goals" with a checklist of goals. Another section titled "Nursing Matters and Patient Safety Goals" is also visible. The poster is pinned to a wall with a patterned border.

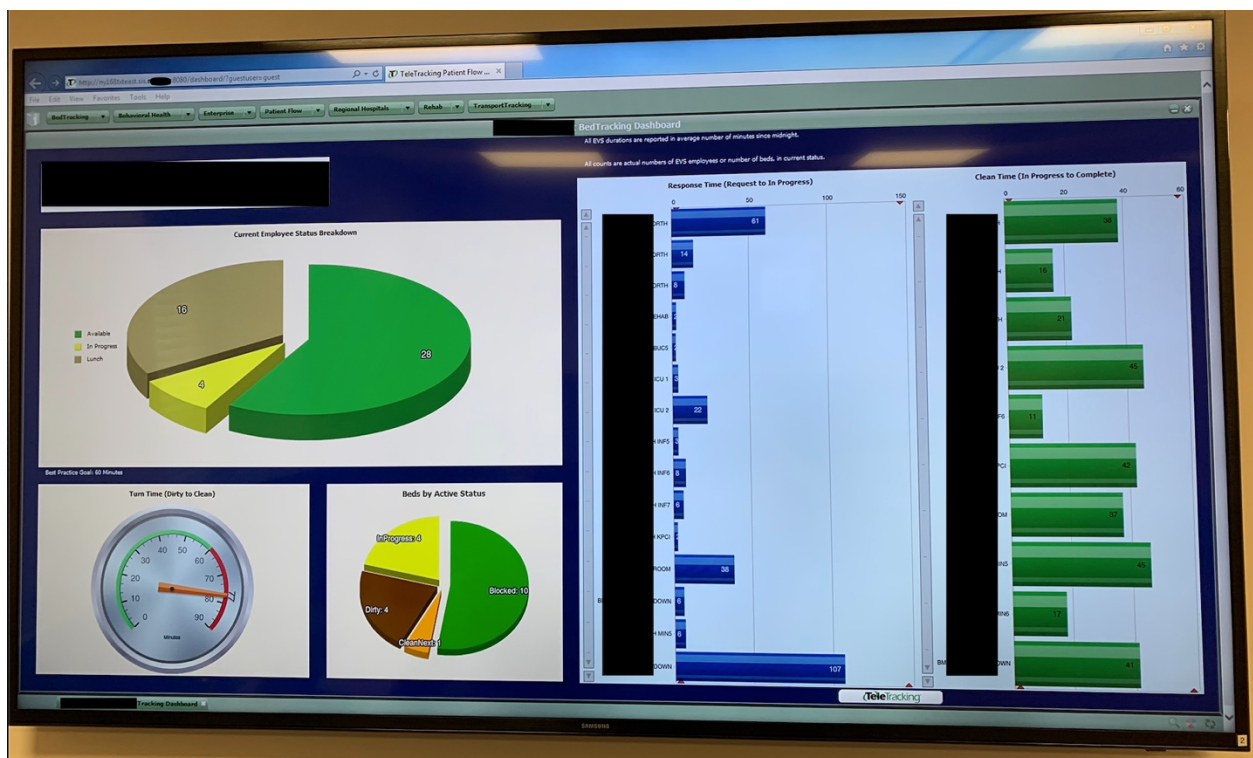
Appendix E: Personal photos of Dashboards for patient flow, bed tracking, and transportation at Borough Hospital (deidentified)



Transportation



Patient flow



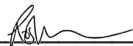
Bed tracking

Publishing Agreement

It is the policy of the University to encourage open access and broad distribution of all theses, dissertations, and manuscripts. The Graduate Division will facilitate the distribution of UCSF theses, dissertations, and manuscripts to the UCSF Library for open access and distribution. UCSF will make such theses, dissertations, and manuscripts accessible to the public and will take reasonable steps to preserve these works in perpetuity.

I hereby grant the non-exclusive, perpetual right to The Regents of the University of California to reproduce, publicly display, distribute, preserve, and publish copies of my thesis, dissertation, or manuscript in any form or media, now existing or later derived, including access online for teaching, research, and public service purposes.

DocuSigned by:



D4AC9657B1C6404...

Author Signature

6/2/2020

Date